

Sara Yousef AlMarabeh, BSc, MSc (Pharmacy),
PhD (Physiology)

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Education

2017-2021	University College Cork PhD in Physiology
2013-2015	University of Jordan MSc. in Pharmaceutical Sciences, <u>research track</u> Graduation date: August 2015, GPA: 3.94/4.0
2008-2013	University of Jordan B.Sc. in Pharmacy Graduated with 3.71/4.0

Research Experience

2017-2021	University College Cork Ph.D. dissertation research Advisors: Dr. Mohammed H. Abdulla and Prof. Ken O' Halloran Thesis: <u>"The role of renal afferent signalling in chronic intermittent hypoxia-induced sympathoexcitation and hypertension."</u> <ul style="list-style-type: none">• Accomplished 5 intermittent hypoxia in vivo studies and non-recovery surgeries on rats during which high and low-pressure baroreflex regulation of renal sympathetic nerve activity were analyzed before and after blockade of renal TRPV1 receptors.• During in vivo experiment, the reno-renal reflex was assessed in intermittent hypoxia-exposed rats through the administration of agonists and antagonists into the renal pelvis.• Examined kidney function in intermittent hypoxia-exposed rats during volume expansion challenge to assess the cardiopulmonary reflex.• Performed inflammatory and oxidative stress biomarkers scanning in renal tissue which involved but was not limited to mesoplate inflammatory and anti-inflammatory analysis.• Analyzed the protein expression of receptors involved in renal afferent neural signaling using immunofluorescence and confocal microscopy ex. TRPV1, NK1, bradykinin 2 and 1 receptors.
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2014-2015	University of Jordan MSc dissertation research Advisors: Prof. Muhammed Alzweiri, Prof. Enam Khalil and Dr. Mohammed Khanfar Thesis: " <u><i>A Prodrug Approach to enhance Azelaic acid Percutaneous Absorption.</i></u> " <ul style="list-style-type: none"> • Synthesized a novel conjugate of Azelaic acid (anti-acne drug) to change its physicochemical properties and enhances its absorption through the skin. • Developed wide-variety of technical skills such as chemical synthesis and purification of compounds, testing the antimicrobial activity of antibacterial entities, analyzing compounds using gas chromatography. • Tested percutaneous absorption using in vitro diffusion cells through excised human abdominal skin.
2013-2014	University of Jordan Research assistant, Principle investigator: Prof. Muhammed Alzweiri <ul style="list-style-type: none"> • Contributed to projects and gained experience in multiple instrumental techniques such as high-performance liquid chromatography, Infrared spectroscopy, UV and fluorescent spectroscopy. • Assisted masters and PhD students practical training and analyzing spectra of high-performance liquid chromatography. • Obtained troubleshooting experience in solving technical problems related to high-performance liquid chromatography and fluorescent spectroscopy.

Publications

1. **Sara AlMarabeh**, Eric F. Lucking, Ken D. O'Halloran and Mohammed H. Abdulla. "*Intra-renal pelvic bradykinin-induced sympathoexcitatory reno-renal reflex is attenuated in rats exposed to chronic intermittent hypoxia*". Journal of Hypertension, 2021
2. Chunlong Huang, **Sara AlMarabeh**, Jeremy Cavers, Mohammed H. Abdulla and Edward J. Johns. "*Effects of intracerebroventricular leptin and orexin-A on the baroreflex control of renal sympathetic nerve activity in conscious rats fed a normal or high-fat diet*". Clinical and Experimental Pharmacology and Physiology, 2020.
3. **Sara AlMarabeh**, Julie O' Neill, Jeremy Cavers, Eric Lucking, Ken O' Halloran and Mohammed Abdulla. "*Chronic intermittent hypoxia impairs diuretic and natriuretic responses to volume expansion in rats with preserved low-pressure baroreflex*".

control of the kidney"; American journal of Renal Physiology, 2020.

4. **Sara AlMarabeh**, Julie O' Neill, Jeremy Cavers, Eric Lucking, Ken O' Halloran and Mohammed Abdulla. "*Baroreflex Control of Renal Sympathetic Nerve Activity and Renal Responses to Volume Expansion Following Intermittent Hypoxia in Rats*", FASEB (2020).
5. **Sara AlMarabeh**, Mohammed H. Abdulla, and Ken D. O'Halloran. "*Is aberrant reno-renal reflex control of blood pressure a contributor to chronic intermittent hypoxia-induced hypertension?*." *Frontiers in physiology* 10 (2019): 465.
6. Ahlam Zaid Alkilani, Rania Hamed, **Sara Al-Marabeh**, Areej Kamal, Rana Abu-Huwaij, and Islam Hamad. *Nanoemulsion-based film formulation for transdermal delivery of carvedilol*. *Journal of Drug Delivery Science and Technology* 46 (2018): 122-128.
7. Muhammed Alzweiri, **Sara Al-Marabeh**, Sanaa K. Bardaweel, Rawhi Alfar, and Yusuf M. Al-Hiari. "*Stability determination for cyclized 2, 4-dinitrophenyl hydrazone derivative of glucose*." *Journal of Analytical Science and Technology* 8, no. 1 (2017): 9.
8. **Sara Al-Marabeh**, Enam Khalil, Mohammad Khanfar, Amal G. Al-Bakri, Muhammed AlZweiri. *A Prodrug Approach to Enhance Azelaic acid Percutaneous Availability*. *Pharmaceutical Development and Technology*, (2016), 1-9.

Scientific presentations

Oral presentations

RAMI Biomedical Sciences meeting, 2021

Royal Academy of
Medicine in Ireland

Chronic Intermittent Hypoxia Blunts Renal Sympathetic Nerve
Activation by Intrapelvic Bradykinin in Rats

Experimental Biology 2020 (Accepted and conference was cancelled)

Experimental Biology,
2020

Baroreflex Control of Renal Sympathetic Nerve Activity and Renal
Responses to Volume Expansion Following Intermittent Hypoxia
in Rats

Sleep and breathing conference

Blunted diuretic response to volume expansion with preserved low-pressure baroreflex function in rats exposed to chronic intermittent hypoxia (**Best oral presentation award**)

Tampere, Finland, 2019.

ASU- Pharmacy second symposium (2015) "Recent Trends in postgraduate research"

A Prodrug Approach To Enhance Azelaic Acid Percutaneous Absorption

Amman, Jordan, 2015.

Poster presentations

Experimental Biology 2021

Renal Sympathetic Nerve Activity and Heart Rate Responses to Renal Pelvic Infusion of Bradykinin and Capsaicin in Rats Exposed to Intermittent Hypoxia

Experimental Biology, 2021

Experimental Biology 2020 (Accepted and conference was cancelled)

Baroreflex Control of Renal Sympathetic Nerve Activity and Renal Responses to Volume Expansion Following Intermittent Hypoxia in Rats

Experimental Biology, 2020

APS/ASN Control of Renal Function in Health and Disease Conference

Blunted diuretic and natriuretic responses to volume expansion following exposure to chronic intermittent hypoxia

Charlottesville, Virginia, USA, 2019.

Europhysiology 2018

Low-pressure baroreflex control of renal sympathetic nerve activity in rats exposed to chronic intermittent hypoxia: Effect of TRPV1 channel blockade

London, UK, 2018.

Al-Zaytoonah University of Jordan and the University of Toledo International Pharmaceutical Conference (ZTIPC 2015)

Azelaic Acid Percutaneous Absorption

Amman, Jordan, 2015.

Awards

April, 2020	Nominated as one of the finalists for the NCARnation award and was supposed to present at Experimental Biology, San Diego, 2020
August, 2019	Anne E. Suratt best oral presentation award, sleep and breathing international conference, Finland, 2019.
June, 2019	The physiological society travel award, The physiological society, UK
June, 2018	The physiological society travel award, The physiological society, UK

Teaching Experience

July 2021- present	<p>Lecturer (Non-permanent full-time), Clinical Biopharmaceutics and Therapeutics Department, University of Jordan, Amman, Jordan</p> <ul style="list-style-type: none">• <i>Teaching pathophysiology course to third year pharmacy students.</i>• <i>This comprises lectures planning, PowerPoint presentations, Quizzes&exams preparation, designing different assessment methods to check students learning and understanding.</i>• <i>This includes online teaching using Teams and exams preparation using E-learning.</i>• <i>Incorporate technology to provide an assessment for students understanding of a topic during teaching without the need to wait until the end of the module and examine the performance by utilising the final exam results such as the use of Poll feature in Powerpoint presentations.</i>
September 2017-2019	<p>Demonstrator, Physiology undergraduate laboratories, University College Cork, Ireland</p> <ul style="list-style-type: none">• <i>Assist students learning in practical laboratories of classes that involve pharmacy, dentistry, medicine, general science and physiology students.</i>• <i>Motivates students by asking them questions to link between scientific explanations/mechanisms with practical life experience.</i>• <i>Acquires practice in physiological techniques such as</i>

sensory physiology, muscle performance assessment and spirometry.

- February 2016- June 2017 Lecturer, Pharmaceutical Sciences Department,
Zarqa University, Zarqa, Jordan
- *Taught analytical chemistry, physical pharmacy and pharmaceutical technology theoretical courses and laboratories.*
 - *This comprised lectures planning, leading weekly discussion activities, designing different assessment methods to check students learning and understanding.*
 - *Contributed to a research project to improve carvedilol bioavailability through transdermal route.*
- 2014-2015 Part-time teaching assistant, Pharmaceutical Sciences Department,
University of Jordan, Amman, Jordan
- Taught analytical chemistry and instrumental analysis laboratories to second and third year pharmacy students. This included the design and preparation of experiments, assist students learning and understanding of experiments and carrying out practical assessments.*
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Training, modules and workshops

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| Research Integrity- Biomedical sciences, as part of the Epigeum Online Course System with a score of 82% | Oxford University press, 2020 |
| Teaching and learning skills module | 2019, University College Cork. |
| Peer Review and Scientific Communication module | 2017, University College Cork. |
| Writing Scientific Research workshop | 2016, Three Circles of Alemat, Jordan Society for Scientific Research, Jordan. |
| IELTS Exam, English proficiency test in Academic module, IELTS score of 6.5 | 2015, British council, Amman, Jordan. |
| SPSS workshop | 2014, University of Jordan |

Training course on "Bioequivalence Studies" 2013, ACDIMA Center for Bioequivalence and Pharmaceutical Studies, Jordan

- *Introduced to ethical applications internationally required for conducting clinical trials for the testing purposes of new pharmaceutical drugs*
- *Introduced to informed consent form and communication with volunteers*

Training at the out-patient pharmacy of Jordan University Hospital. (with a total of 160 hours) 2012, Jordan University Hospital

Other activities

Professional activities

The Physiological society, UK Affiliate member
The American Physiological society Early-career member

Journal activities

Pharmaceutical Biology Journal Referee, 2015

Research skills

- Surgical skills on anesthetized rats including cannulation of arteries, veins and ureter, incisions, renal nerve recording and kidney function assessment.
- Histology, immunofluorescence and confocal microscopy
- ELISA and biochemical assays
- In vivo pre-clinical studies
- HPLC and gas chromatography
- Infrared spectroscopy
- Online teaching
- Science Education

References:

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