RUFAIDA AL ZOUBI

ASSISTANT PROFESSOR, B.SC., M.SC., PHD

Phone: (962) 786-589-62
E-mail: rmalzoubi1@just.edu.jo

Department of Medicinal Chemistry and Pharmacognosy, Faculty of Pharmacy, Jordan University of Science and Technology.
P.O. Box 3030, Irbid 22111, Irbid, Jordan

PROFILE

I am currently working as an assistant professor at Jordan University of Science and Technology. I hold an undergraduate degree in Pharmacy, and a M.Sc. degree in Pharmaceutical Sciences. I have earned my PhD degree in Medicinal Chemistry (Computational Biochemistry) from the University of North Carolina at Greensboro, NC, USA, under the supervision of Dr. Patricia Reggio.

EDUCATION

PhD	University of North Carolina at Greensboro, NC, USA Dissertation: Molecular level studies on the cannabinoid receptor type 1 (CB1): biased signaling and MD simulations Committee: Patricia Reggio (chair), E. Will Taylor, Kimberly Peterson, Sherri McFarland	2018
MS	University of Jordan Thesis: Synthesis and antibacterial evaluation of novel 8-nitro -fluoroquinolone derivatives Advisor: Yusuf M Al-Hiari, Amjad Qandil	2008
BS	Jordan University of Science and Technology B.Sc. in Pharmacy	2003

WORK EXPERIENCE

Assistant Professor, Department of Medicinal Chemistry and Pharmacognosy, Jordan University of Science and Technology, Irbid, Jordan.	2018-present
Teaching Assistant, Department of Chemistry and Biochemistry, The University of North Carolina, at Greensboro, NC, USA	2014-2018
Lecturer (Part-time), Faculty of Pharmacy,	2012-2013

Applied Science Private University. Amman, Jordan

Analyst and clinical studies monitor, 2003-2006
Department of Research and Development. Jordanian
Pharmaceutical Manufacturing Co. Um Al-Amad, Jordan.

RESEARCH EXPERIENCE

My primary research focus revolves around lipid-binding G-protein coupled receptors, specifically the free fatty acid receptor 1 and the virally encoded BILF1. Through the application of molecular dynamics simulations, I aim to unravel the molecular basis of signaling in these receptors. Additionally, my research involves utilizing virtual screening and computational modeling to propose a set of small molecular modulators for these receptors. In addition, I am actively engaged in collaborative efforts with a team of synthetic chemists within the Faculty of Pharmacy at JUST, contributing to the design of innovative enzymatic inhibitors with potential anti-cancer properties. The search is initiated by gaining an in-depth understanding of the active site's structure of the enzyme and a thorough understanding of the specific types of intermolecular interactions associated with the inhibitor.

Current Research Grants

Granting party: Deanship of Research/ Jordan University of Science and Technology

Grant No. 20230498. Molecular Dynamics Simulations Studies on a Virus-encoded G-protein Coupled Receptor. (Principal Investigator)

Grant No. 20220244. Design and synthesis of substituted 1,5-naphthyridin-2(1H)-one derivatives as potential pim-1 kinase inhibitors (Principal Investigator)

Grant No. 20220049. Molecular dynamics-based investigation of the molecular basis of endogenous signaling and functional activity of FFAR1. (Principal Investigator)

Grant No. 20230498. Identification of Novel TOPK Inhibitors as a Potential Anti-Cancer Treatment Using Ligand-Based Pharmacophore Modeling, Molecular Docking, and Molecular Dynamics Simulation (Principal Investigator)

Grant No. 2022015. Structure-Activity Relationship (SAR) Studies of Pyridine and 2-aminopyridine Derivatives as PIM-1 Inhibitors with Potential Anticancer Activity (Co-principal Investigator)

Previous Research Grants

Grant No. 20200617. Fragment-based drug design of ago-allosteric modulators of free fatty acid receptor 1 as potential antidiabetics. (Principal Investigator)

TEACHING EXPERIENCE

On the teaching front, I have had the privilege of instructing undergraduate and graduate level courses.

Assistant Professor, Jordan University of Science and Technology
Undergraduate level course:

Pharmaceutical organic chemistry: This course is tailored for pharmacy students and is designed to provide fundamental knowledge essential for pharmacy students to comprehend the chemical structure of drug compounds.

Medicinal Chemistry I and II: two-level medicinal chemistry courses, where students are equipped with the skills to apply fundamental knowledge in organic chemistry and understand the physicochemical properties of drug compounds. These courses also delve into a comprehensive understanding of the pharmacokinetic and pharmacodynamics effects associated with drug compounds.

Graduate level course:

Selected Topics in Medicinal Chemistry: Metabolism of drug compounds
Special Topics: Advanced Biochemistry
Research Methodology

Teaching assistant, University of North Carolina at Greensboro
Undergraduate level course

CHE112 General Chemistry Lab I

Lecturer (Part-time), Applied Science Private University

Pharmacokinetics

PUBLICATIONS

Books

Al-Zoubi, R., Hurst, D. P., & Reggio, P. H. (2018). Structural Insights from Recent CB1 X-Ray Crystal Structures. Recent Advances in Cannabinoids Research. IntechOpen. https://doi.org/10.5772/intechopen.80783.

Journal Publications

Luciana M. Leo, **Rufaida Al-Zoubi**, Dow P. Hurst, Anna P. Stephan, Pingwei Zhao, Douglas G. Tilley, Elke Miess, Stefan Schulz, Mary E. Abood, and Patricia H. Reggio. (2023). The NPXXY Motif Regulates β-Arrestin Recruitment by the CB1 Cannabinoid Receptor. Cannabis and Cannabinoid Research 2023 8:5, 731-748. https://doi.org/10.1089/can.2021.0223.

Al-Zoubi, R., Morales, P., & Reggio, P. H. (2019). Structural insights into cb1 receptor biased signaling. In International Journal of Molecular Sciences (Vol. 20, Issue 8). MDPI AG. https://doi.org/10.3390/ijms20081837.

Al-Hiari, Y.M., Qandil, A.M., **Al-Zoubi, R.M**. et al. Synthesis and antibacterial activity of novel 7-haloanilino-8-nitrofluoroquinolone derivatives. Med Chem Res 21, 1734–1740 (2012). https://doi.org/10.1007/s00044-011-9692-3

Al-Hiari, Y.M.; Qandil, A.M.; **Al-Zoubi, R.M**.; Alzweiri, M.H.; Darwish, R.M.; Shattat, G.F.; Al-Qirim, T.M. 7-(3-Chlorophenylamino)-1-cyclopropyl-6-fluoro-8-nitro-4-oxo-1,4-dihydroquinoline-3-carboxylic Acid. Molbank 2010, 2010, M669. https://doi.org/10.3390/M669

Mahmoud M. Al Omari, **Rufaida M. Zoubi**, Enas I. Hasan, Tariq Z. Khader, Adnan A. Badwan, Effect of light and heat on the stability of montelukast in solution and in its solid state, Journal of Pharmaceutical and Biomedical Analysis, Volume 45, Issue 3, 2007, Pages 465-471, ISSN 0731-7085, https://doi.org/10.1016/j.jpba.2007.07.014.

Conference Papers

(Abstract-Reviewed)

Functional Residues in Cannabinoid Receptor Type 1 β-arrestin Biased Signaling
Luciana M. Leo, Pingwei Zhao, **Rufaida Al Zoubi**, Patricia H. Reggio, Mary E. Abood
First published: 01 April 2018.
https://doi.org/10.1096/fasebj.2018.32.1_supplement.685.4.

WORKSHOPS AND WEBINARS

- Basics of Distance Education — Feb, 2021
- Statistical Data Analysis Using SPSS — Feb, 2021
- Create and host a public website using MS SharePoint — Jul, 2021
- Exams and Assessment — Aug, 2021
- University Regulations That Govern Student-Faculty Relationship — Mar, 2023
- Designing Effective E-Learning — Aug, 2023

PROFESSIONAL AFFILIATIONS

Jordan Pharmaceutical Association, 2003-Present

CONFERENCES

- Multidisciplinary Pharmaceutical Research (MDPR). Irbid, Jordan, Jun.6-8, 2023.
- European Research Network on Signal Transduction (4th ERNEST). Online, Apr.12-14, 2021.
- The 9th GDR3545-GPCR international meeting. Online, Nov.6-9, 2020.
- The 3rd European Research Network on Signal Transduction (ERNEST), Signal transduction: from the genomic to the system level. Online, Oct.12-14, 2020.
- 2nd COMPARE GPCR ECR Symposium. Online, Sep.29 - Oct.1, 2020.
- Dr. GPCR Summit. Online, Sep.14-18, 2020.
- 29th Annual International Cannabinoid Research Society Meeting (ICRS). Bethseda, MA, USA,

- Carolina Cannabinoid Collaborative (CCC). Raleigh, NC, USA, Nov.9-11, 2018.
- Southeast Regional Meeting - American Chemical Society (SERMACS). Charlotte, NC, USA, Nov.8-9, 2017.
- Carolina Cannabinoid Collaborative (CCC). Durham, NC, USA. Oct.27-29, 2017.
- The 11th Pharmacy Conference. Concepts of Bioequivalence and Bioavailability Studies. 2005, Amman, Jordan.
- Pharmaceutical Sciences Fair and Exhibition, 2005. Nice, France.

POSTER PRESENTATIONS

- Multidisciplinary Pharmaceutical Research (MDPR). Irbid, Jordan, Jun.6-8, 2023. Targeting Pim-1 kinase for anticancer activity: In silico studies and indolin-2-one hit inhibitor identification
- Chemistry and Pharmacology of Drug Abuse (CPDA), 2017. Boston, Massachusetts, USA. "Mechanistic Study of Biased Signaling at the Cannabinoid CB1 Receptor".
- The Southeastern Regional Meeting of the American Chemical Society (SERMACS), 2017, Charlotte, NC, USA. "N-terminal region of the cannabinoid receptor (CB1), Remodeling of the proximal region using docking studies and molecular dynamics simulations".
- Carolina Cannabinoid Collaborative (CCC), 2017. Durham, NC, USA. Parameterization and All Atom Simulation of SR141716A in a Lipid Bilayer".
- CNC-ACS 17th Annual Poster Vendor Night, Greensboro, NS, USA. "Parameterization of SR141716A: An inverse agonist of the cannabinoid CB1 receptor".
- Pharmaceutical Sciences Fair and Exhibition, 2005. Nice, France. "Effect of light and heat on the stability of montelukast in solution and in its solid state".

ACADEMIC SUPERVISION AND THESIS COMMITTEES

M.Sc., Medicinal Chemistry, Department of Medicinal Chemistry and Pharmacognosy, Faculty of Pharmacy, Jordan University of Science and Technology:

Main Advisor

Hafidah Alqudah: . Identification of Novel TOPK Inhibitors as a Potential Anti-Cancer Treatment Using Ligand-Based Pharmacophore Modeling, Molecular Docking, and Molecular Dynamics Simulation. **Current student**.
Samah Sukkar: Computational studies at the free fatty acid receptor 1; endogenous signaling and the design of prospective allosteric modulators as antidiabetics. **Defended her thesis**
Omar Hadieh: Targeting pim-1 kinase for anticancer activity: in silico studies and hit inhibitor identification. **Graduated 2023**

Co-advisor
Majd Mreia't: Structure-Activity Relationship (SAR) Studies of Benzofuran and Indole Derivatives as PIM-1 Inhibitors with Potential Anticancer Activity. **Current student**

Internal Examiner:

Roa'a Bani Khalaf: Combined Multiple 3D pharmacophores discovery approaches of novel Glyoxalase-I Inhibitor. **2023**
Du'a Al-Bustanji: Hit-to-lead optimization of amino-carboxamide benzothiazoles as lsd1 inhibitors with potential anticancer activity. **2020**
Hana'a Jaradat: Design, synthesis and biological evaluation of novel glyoxalase I inhibitors possessing diazenylbenzene sulfonamide moiety as potential anticancer agents. **2020**
Sondos Musleh: Exploration of the ATP and Non-ATP Pockets for Potential Inhibition of the CHK1 Kinase Using Molecular Dynamics Simulation and Pharmacophore Modeling. **2019**

LANGUAGES

Arabic: Native Language

English: Proficiency.

REFERENCES

Sayer I. Al-Azzam, Associate Professor at Clinical Pharmacy Department at JUST, salazzam@just.edu.jo.

Dr. Paula Morales, Postdoctoral researcher, Instituto de Química Medica, Consejo Superior de Investigaciones Científicas E-28006 Madrid, Spain. E-mail: paulamlcr@gmail.com