

Buthina Abdallah Al-Oudat, PhD

Associate Professor, Organic Chemistry- Medicinal Chemistry

Personal Information

Name: Buthina Abdallah Al-Oudat
Nationality: American/ Jordanian
Place of Birth: New York, USA
Date of Birth: November 9th, 1980
Marital Status: Married
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Dedicated and motivated academician and researcher exhibiting teaching and research experience in the field of medicinal chemistry and organic chemistry. Currently I am an associate professor in the department of medicinal chemistry and pharmacognosy at the faculty of Pharmacy - Jordan University of Science and Technology, teaching organic chemistry and medicinal chemistry courses on undergraduate and postgraduate levels.

Committed to encourage students to pursue academic excellence and motivate them to develop their full potential in their studies. Guiding M.Sc. students in their research works and publications. In terms of research, as a synthetic chemist, I am interested in using multi-step synthetic organic chemistry as a tool for the development of anti-cancer and anti-inflammatory agents. The synthesis of natural product derivatives and heterocyclic compounds as small molecule inhibitors is a major track in my research.

Seeking to further expand my knowledge, experience and professional network to offer an opportunity for the progression and development of students, colleagues and myself.

Address

Department of Medicinal Chemistry and Pharmacognosy
Faculty of Pharmacy
Jordan University of Science and Technology
P.O. Box 3030, Irbid 22110, Jordan
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Education

PhD in Medicinal Chemistry -Organic Chemistry

2007 - 2011

Department of Medicinal and Biological Chemistry
University of Toledo
2801 W. Bancroft St. Toledo, OH 43606, USA

Thesis Title:

Independent Generation and Investigation of the C3'-deoxy-3'-thymidinyI Radical: A Proposed Intermediate in DNA-LEE Interactions

BSc in Chemistry

1998 - 2003

Department of Chemistry
Yarmouk University
P.O Box 566, Irbid 21163, Jordan

Experience-Academic

Associate professor

09/2020 - Present

Department of Medicinal Chemistry and Pharmacognosy
Faculty of Pharmacy, Jordan University of Science and Technology
P.O. Box 3030, Irbid 22110, Jordan

Assistant professor

02/2012 – 08/2020

Department of Medicinal Chemistry and Pharmacognosy
Faculty of Pharmacy, Jordan University of Science and Technology
P.O. Box 3030, Irbid 22110, Jordan

Undergraduate Research Mentor

06/2019 - present

Department of Medicinal and Biological Chemistry
Faculty of Pharmacy, University of Toledo
2801 W. Bancroft St. Toledo, OH 43606, USA

Research Assistant

09/2008 - 09/2011

Department of Medicinal and Biological Chemistry
Faculty of Pharmacy, University of Toledo
2801 W. Bancroft St. Toledo, OH 43606, USA

Undergraduate Research Mentor

09/2009 - 09/2010

Department of Medicinal and Biological Chemistry
Faculty of Pharmacy, University of Toledo,
2801 W. Bancroft St. Toledo, OH 43606, USA

Research Assistant

09/2006 - 09/2007

Department of Chemistry
Oakland University
318 Meadow Brook Rd, Rochester, MI 48309, USA

Experience- Administrative

Department head

09/2013 - 09/2014

Department of Medicinal Chemistry and Pharmacognosy
Faculty of Pharmacy, Jordan University of Science and Technology
P.O. Box 3030, Irbid 22110, Jordan

Teaching

Teaching courses for BSc, PharmD, and MSc levels

- Organic Chemistry I
- Organic Chemistry II
- Pharmaceutical Organic Chemistry
- Heterocyclic Chemistry
- Medicinal Chemistry I
- Medicinal Chemistry II
- Advanced Organic Chemistry

- Advanced Organic Synthesis
- Advanced Organic Synthesis Research Laboratory

Graduate students

Main supervisor:

- Farah Alomari:
Thesis Title: Synthesis and biological evaluation of bis-imine/hydrazide derivatives as glyoxalase-I inhibitors. In progress
- Bushra AbuAlfool:
Thesis Title: Lead Optimization and Biological Evaluation of quinoline derivatives as glyoxalase-I inhibitors. Graduated 2023
- Hanaa Jaradat:
Thesis Title: Design, synthesis and biological evaluation of novel glyoxalase I inhibitors possessing diazenylbenzenesulfonamide moiety as potential anticancer agents. Graduated 2020
- Rajaa Badarneh:
Thesis Title: Design and Synthesis of Novel Thiazole Based Scaffold Derivatives Targeting Glyoxalase-I Enzyme as Anti-Cancer Candidates. Graduated 2015

Research skills

- Organic synthesis.
- Automated solid phase synthesis (automated DNA synthesis).
- Spectroscopic identification of organic compounds.
- HPLC instrument.
- In-vitro evaluation of anti-inflammatory and anti-cancer activities of pharmaceutical compounds (GlxI and LTA₄H enzymes).

Collaborators

- Dr. Sihem Boudina, The university of UTAH, UT, USA
- Dr. Amanda Bryant-Friedrich, Wayne State University, Detroit, MI, USA
- Dr. Amit K. Tiwari, University of Toledo, Toledo, OH, USA
- Dr. Suaad Audat, Dr. Qosay Al-Balas, Dr. Nizar Al-Shari', Dr. Sorya Al-Nabulsi, Dr. Tamam El-Elimat; Jordan University of Science and Technology, Jordan

Publications

- **Buthina A. Al-Oudat**, Nizar A. Al-Shar'i, Qosay A. Al-Balas, Suaad A. Audat, Mohammad A Y Alqudah, Ali H. Hamzah, Ramez W. Hallak, Mel Bedi, Amanda Bryant-Friedrich, Lead optimization and biological evaluation of diazenylbenzenesulfonamides inhibitors against glyoxalase-I enzyme as potential anticancer agents, *Bioorganic chemistry*, **2022**, 105657

- Suaad Abdallah Audat, Qosay Ali Al-Balas, **Buthina A. Al-Oudat**, Mo'ad Jamil Athamneh, Amanda Bryant-Friedrich, Design, Synthesis and Biological Evaluation of 1,4-Benzenesulfonamide Derivatives as Glyoxalase I Inhibitors, *Drug design, development and therapy*, **2022**, 16, 873–885.
- Suaad Abdallah Audat, Nizar A. Al-Shar'i, **Buthina A. Al-Oudat**, Soraya Alnabulsi, Design, synthesis, and biological evaluation of SMYD3 inhibitors possessing N-thiazole benzenesulfonamide moiety as potential anti-cancer agents. *Journal of Saudi Chemical Society*, **2022**, 101482.
- **Al-Oudat, B. A.**; Hana'a, M. J.; Al-Balas, Q. A.; Al-Shar'i, N. A.; Bryant-Friedrich, A.; Bedi, M. F., Design, synthesis and biological evaluation of novel glyoxalase I inhibitors possessing diazenylbenzenesulfonamide moiety as potential anticancer agents. *Bioorganic & medicinal chemistry* **2020**, 115608.
- **Al-Oudat, B. A.**; Ramapuram, H.; Malla, S.; Audat, S. A.; Hussein, N.; Len, J. M.; Kumari, S.; Bedi, M. F.; Ashby, C. R.; Tiwari, A. K., Novel Chrysin-De-Allyl PAC-1 Hybrid Analogues as Anticancer Compounds: Design, Synthesis, and Biological Evaluation. *Molecules* **2020**, 25 (13), 3063.
- Audat, S. A.; Al-Shar'i, N. A.; **Al-Oudat, B. A.**; Bryant-Friedrich, A.; Bedi, M. F.; Zayed, A. L.; Al-Balas, Q. A., Identification of Human Leukotriene A4 Hydrolase Inhibitors Using Structure-Based Pharmacophore Modeling and Molecular Docking. *Molecules* **2020**, 25 (12), 2871.
- **Al-Oudat, B. A.**; Alqudah, M. A.; Audat, S. A.; Al-Balas, Q. A.; El-Elmat, T.; Hassan, M. A.; Frhat, I. N.; Azaizeh, M. M., Design, synthesis, and biologic evaluation of novel chrysin derivatives as cytotoxic agents and caspase-3/7 activators. *Drug design, development and therapy* **2019**, 13, 423
- Al-Balas Q, Hassan M, **Al-Oudat B**, Alzoubi H, Mhaidat N, Almaaytah A. Generation of the First Structure-Based Pharmacophore Model Containing a Selective “Zinc Binding Group” Feature to Identify Potential Glyoxalase-1 Inhibitors. *Molecules* **2012**;17(12):13740-58
- **Al-Oudat, B.**; Salyer, A.; Trabbic, K.; Bryant-Friedrich, A., 3'-Modified oligodeoxyribonucleotides for the study of 2-deoxyribose damage in DNA. *Bioorganic & medicinal chemistry letters* **2012**, 23, 854-859.
- Audat, S.; Love, C.; **Al-Oudat, B.**; Bryant-Friedrich, A., Synthesis of C3' Modified Nucleosides for Selective Generation of the C3'-Deoxy-3'-thymidiny Radical: A Proposed Intermediate in LEE Induced DNA Damage. *The Journal of Organic Chemistry* **2012**, 77, 3829-37.

Conferences and workshops

- Identification of Damage Products Derived from C3'-Deoxy-3'-thymidiny Radical, A Proposed Intermediate from DNA-LEEs Interactions, University of Toledo Midwest Graduate Research Symposium, University of Toledo, Toledo, Ohio, USA, 2011
- Generation and Characterization of C3'-deoxy-3'-thymidiny Radical in Single-Stranded Oligonucleotides, Midwest Carbohydrate and Glycobiology Symposium, University of Toledo, Toledo, Ohio, USA, 2010
- Generation and Characterization of C3'-deoxy-3'-thymidiny Radical in Single-Stranded Oligonucleotides, American Chemical Society, Boston, MA, USA, 2010
- Generation and Investigation of C3'-Deoxy-3'-thymidiny Radical in Single-Stranded Oligonucleotides, Gordon Research Conference/Radiation Chemistry Division, Andover, NH, USA, 2010
- Oxidative Damage to DNA by Low-Energy Electrons, University of Toledo Midwest Graduate Research Symposium, University of Toledo, Toledo, Ohio, USA, 2010

- Independent Generation of DNA damage by Low-Energy Electrons, Radiation Research Society Conference, Savannah, GA, USA, 2009
- Independent Generation of DNA damage by Low-Energy Electrons, Scholars' Celebration / Sigma Xi Student Research Symposium, University of Toledo, Toledo, OH, USA, 2009
- SIT Workshop, Radiation Research Society Conference, Savannah, GA, USA, 2009.
- Generation of DNA damage resulting from Low-Energy Electrons, Scholars' Celebration / Sigma Xi Student Research Symposium, University of Toledo, Toledo, OH, USA, 2008

University Activities

Committees:

- Faculty Assessment Committee, 2023-2024: Member
- Departmental Exams Evaluation Committee, 2023-2024: Member
- Faculty Scientific Research Committee, 2023-2024: Member
- Faculty Assessment Committee, 2022-2023: Member
- Departmental Exams Evaluation Committee, 2022-2023: Member
- Faculty Scientific Research Committee, 2022-2023: Member
- Faculty Assessment Committee, 2021-2022: Member
- Departmental Exams Evaluation Committee, 2021-2022: Member
- Faculty Scientific Research Committee, 2021-2022: Member
- Departmental Scientific Research Committee, 2021-2022: Member
- Faculty Assessment Committee, 2020-2021: Member
- Departmental Exams Evaluation Committee, 2020-2021: Chair
- Departmental Scientific Research Committee, 2019-2020: Member
- Faculty Assessment Committee, 2019-2020: Member
- Faculty Social Committee, 2019-2020: Member
- Library Committee, 2019-2020: Member
- Departmental Assessment Committee, 2019-2020: Member
- Departmental Scientific Research Committee, 2018-2019: Member
- Laboratory and Supplies Committee, 2018-2019: Member
- Accreditation Council for Pharmacy Education sub-committee#7 2017-2018: Member
- Faculty Scientific Research Committee, 2017-2018: Member
- Curriculum and Course Schedule Committee, 2017-2018: Member
- Laboratory and Supplies Committee, 2016-2017: Member
- Faculty Social Committee, 2016-2017: Member
- Faculty Website Committee, 2015-2016: Member
- Courses' Equivalency Committee, 2015-2016: Member
- Departmental Assessment Committee, 2015-2016: Member
- Departmental Scientific Research Committee, 2014-2015: Member
- Courses' Equivalency Committee, 2014-2015: Member
- Curriculum and Course Schedule Committee, 2014-2015: Member
- Laboratory and Supplies Committee, 2014-2015: Member
- Departmental Graduate Studies Committee, 2013-2014: Chair
- Faculty Graduate Studies Committee, 2013-2014: Member
- Departmental Scientific Research Committee, 2013-2014: Member
- Faculty Scientific Research Committee, 2013-2014: Member
- Laboratory and Supplies Committee, 2013-2014: Member
- Curriculum and Course Schedule Committee, 2013-2014: Member

Grants and Projects

- Deanship of Research/ Jordan University of Science and Technology Grant No. 20150009. Design and Synthesis of Novel Thiazole Based Scaffold Derivatives Targeting Glyoxalase 1 Enzyme as Anticancer Candidates. 2015, amount: JD 6,500. (Principal Investigator)
- Deanship of Research/ Jordan University of Science and Technology Grant No. 20150088. Design and Synthesis of Novel 5-Hydroxy Flavone Based Scaffold Derivatives Targeting Leukotriene A4 hydrolase Enzyme as Potential Anti-inflammatory Agents. 2015, amount: JD 9,950. (Principal Investigator)
- Deanship of Research/ Jordan University of Science and Technology Grant No. 20150357. Design and Biological Evaluation of Novel Inhibitors Targeting Leukotriene A4 hydrolase Enzyme as Potential Anti-inflammatory Agents. 2015, amount: JD 9,700. (Principal Investigator)
- Deanship of Research/ Jordan University of Science and Technology Grant No. 20170343. Design, Synthesis and Biological Evaluation of Novel Modified Nucleosides as Anticancer Candidates. 2017, amount: JD 17,025. (Co-Principal Investigator)
- Deanship of Research/ Jordan University of Science and Technology Grant No. 20190360. Chrysin Derivatives as Potential EGFR Kinase Inhibitors: Synthesis, Biological Evaluation and Molecular Docking. 2019, amount: JD 9,900. (Principal Investigator)
- Deanship of Research/ Jordan University of Science and Technology Grant No. 20190513. Design, synthesis and biological evaluation of novel glyoxalase I inhibitors possessing diazenylbenzenesulfonamide moiety as potential anticancer agents. 2019, amount JD 6,000. (Principal Investigator)
- Deanship of Research/ Jordan University of Science and Technology Grant No. 20190258. Biological Evaluation of Novel SMYD3 Small-Molecule Inhibitors as Anticancer Candidates. 2017, amount: JD 9,500. (Co-Principal Investigator)
- Deanship of Research/ Jordan University of Science and Technology Grant No. 20200121. Development of a series of novel diazenylbenzenesulfonamide derivatives possessing quinoline scaffold as glyoxalase I inhibitors. 2020, amount JD 9,950. (Principal Investigator)
- Deanship of Research/ Jordan University of Science and Technology Grant No. 20210129. Chalcone Derivatives as Glyoxalase I Inhibitors. 2021, amount JD 9,350. (Principal Investigator)

Academic Honors and Awards

- Graduate Student Association Travel Award, University of Toledo, Toledo, Ohio, **2011**
- Chemical Toxicology Travel Award, American Chemical Society National Meeting, Boston, **2010**
- Outstanding Academic Achievement, Department of Chemistry, Yarmouk University, Jordan, **2001/2002**

References

Dr. Amanda Bryant-Friedrich, Professor
 Dean, Wayne State University Graduate School
 Professor of Pharmaceutical Sciences
 Phone: (313) 577-2172
 e-Mail: amanda.bryant-friedrich@wayne.edu

Dr. L.M. Viranga Tillekeratne, Professor
 Department of Medicinal and Biological Chemistry

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2801 W. Bancroft St. Toledo, OH 43606, USA
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