

Dima Azzam Sabbah
B. Pharm., M.S., Ph.D. Pharm. Sci.
Al-Zaytoonah University of Jordan, College of Pharmacy, Department of
Pharmaceutical Sciences
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PROFESSIONAL EXPERIENCE

An academic position that takes the advantages of extensive experience in computational chemistry and drug design.

HIGHLIGHTS

- Computational Chemistry and Drug Design.
- Medicinal Chemistry.
- Pharmacy Background.
- Teaching Experience.
- Researching Experience.

PRESENT OCCUPATION

October 2012-Present, *Assistant Professor*, College of Pharmacy, Al- Zaytoonah University of Jordan

- **TEACHING EXPERIENCE**
 - Medicinal Chemistry (I /II/III) and Drug Design courses for Undergraduates Pharmacy Students.
 - Advanced Medicinal Chemistry, Drug Design, Advanced Organic Chemistry, Advanced Instrumental Analysis, and Research Methodology courses for Postgraduates Master Pharmacy Students.

RESEARCH EXPERIENCE

- 2013-Present, *Modeling and Drug Design Laboratory Supervisor*.
- *Funded Projects:*
- 2014-2016, Al-Zaytoonah University of Jordan, the Deanship of Scientific Research (108,000 JD), Project Title: Design, Synthesis, and Biological Evaluation of PI3Ks Inhibitors.

Dima A. Sabbah, Ghassan Abu Sheikha, Tariq Al-Qirim, Reema Abu Khalaf

- 2015-2016, Al-Zaytoonah University of Jordan, the Deanship of Scientific Research (38,100 JD); Project title: 3-Benzylamino-Benzamides: Design, Synthesis, and Biological Evaluation as Novel CETP Inhibitors.

Reema Abu Khalaf, Ghassan Abu Sheikh, Dima A. Sabbah, Eveen Shalabi

- 2013-2015, University of Jordan, Hamdi Mango Center for Scientific (5000 JD); Project title: Synthesis, Characterization and Biological Evaluation for some PI3Ks Inhibitors.

Kamal Sweidan, Ghassan Abu Sheikh, Dima A. Sabbah

• SUPERVISING, MENTORING EXPERIENCE, & EXAMINER

• *Graduate Students:*

- 2015-2016 (*Molecular Modeling Mentor and Examiner*) Design, Synthesis, and *In Vivo* Biological Evaluation of Novel Benzimidazole-2-Carboxamide Derivatives As - Antihyperlipidemic Agent" (M. Sc. Student: *Hanin Mohammad K. Kalloush*)
- 2015-2016 (*Molecular Modeling Mentor*) Design, Synthesis, and *In Vivo* Biological Evaluation of Imidazole-5-Carboxamide Derivatives As Lipoprotein Lipase Activators" (M. Sc. Student: *Haneen Muneer Mohammad Abu Zaid*)
- July 18, 2016 (*Examiner*) Influence of Polymer Type and Its Molecular Weight on the Release of Quercetin from Polymeric Micelles (M. Sc. Student: *Aya Sadat Taha Alsadi*)

- 2015-2016 (*Advisor*) Optimization and Synthesis of Benzoin Derivatives as PI3K α Inhibitors (M. Sc. Student: *Ameerah Saeed Ibrahim*)
- 2015-2016 (*Mentor*) Design, Synthesis, and Biological Evaluation of Benzoin Schiff Bases as Antitumor Agents (M. Sc. Student: *Fatmeh Mahmoud Tarawneh*)
- 2015-2016 (*Advisor*) Phenanthridines: Design, Synthesis, and Biological Evaluation as Potential DPP-IV Inhibitors (M. Sc. Student: *Dalal Yousef Masalha*)
- 2015-2016 (*Mentor & Examiner*) Fluorinated Benzamides: Design, Synthesis and Biological Evaluation as Potential CETP Inhibitors (M. Sc. Student: *Sarah Mohammad Ahmad Al-Rawashdeh*)
- 2014-2016 (*Mentor & Examiner*) Synthesis and Antihyperlipidemic Properties of Novel *N*-(4-Benzoylphenyl) Pyrrole-2-Carboxamide Derivatives (M. Sc. Student: *Nisreen Nazmi Haj Ahmad*)
- 2014-2016 (*Mentor & Examiner*) Synthesis and Biological Evaluation of Novel 5-Bromo Indole-2-Carboxamide Derivatives (M. Sc. Student: *Amneh Mahmoud Abu Al-Inin*)
- 2015 (*Mentor & Examiner*) Synthesis and Biological Evaluation of Substituted Fluorinated Alkyloxy Benzenamide as Potential CETP inhibitors (M. Sc. Student: *Hamada Mansour Abd El-Aal Abd El-Aziz*)
- 2014-2015 (*Mentor*) Synthesis and Biological Evaluation of Novel *N*-Benzoylphenyl-2-Furamide Derivatives. (M. Sc. Student: *Dania Mohammed Nazer Al kabbani*)
- 2013-2014 (*Advisor*) Design, Synthesis, and Biological Evaluation of Novel PI3K alpha Inhibitors. (M. Sc. Student: *Bayan Salah Hishmah*)
- 2013-2014 (*Advisor*) Pharmacophore-Based Screening and Identification of Novel Phosphoinositide 3-kinase (PI3K α) Inhibitors. (M. Sc. Student: *Musaab Mahmoud Saada*)
- 2013 (*Mentor & Examiner*) Design, Synthesis, and Biological Evaluation of a New Series of Potential CETP Inhibitors. (M. Sc. Student: *Mohamed Galal Saad El Hendy*)
- 2013 (*Mentor & Examiner*) Design, Synthesis, and Biological Evaluation of a New Series of Potential DPP IV Inhibitors. (M. Sc. Student: *Zainab Jarekji*)

- ***Undergraduate Students:***
 - 2016 (*Advisor*) Molecular Docking Studies on Epidermal Growth Factor Receptor (EGFR) (*Hakam M. Al Aqabani & Ikhlas Altaweel*).

Hakam & Ikhlas achieved the second place in Splendor of Pharmacists (SOP) Competition- Medicinal Chemistry (Structure-Based Drug Design) Section.
- **COMMITTEE EXPERIENCE:**
 - 2015-Present, The Head of the Central Research Unit.
 - 2015, Scientific Committee Member of ZTIPC 2015 conference.
 - 2014-2015, The Chair of the Laboratory and Devices Committee.
 - 2013-2014, The Chair of the Conference Committee:
 - May 15, 2013, Organizer of One Day Symposium on Cancer, entitled "Cancer: Causes, Diagnosis, and Treatment".
- 2007-2012, ***Ph.D. Student and Research Assistant, University of Nebraska Medical Center, Omaha, NE.***
 - Homology modeling of phosphoinositide- 3- kinases (PI3Ks) using MOE software
 - Pharmacophore Generation for PI3K α selective inhibitors using MOE software
 - Pharmacophore Search against the National Cancer Institute database using MOE software
 - Molecular Dynamic simulations for the kinase domains of PI3Ks using the AMBER 10 package
 - Calculating the binding free energies of prospective inhibitors using the MM/GBSA (molecular mechanics/ generalized born surface area) method in AMBER10
 - Recruiting the computational alanine- scanning approach to calculate the relative change in free energy of binding ($\Delta\Delta G_{bind}$) for the alanine mutants of binding residues in the protein using MM/GBSA in AMBER10
 - Docking studies for PI3K inhibitors using MAESTRO
 - Design and Synthesis of novel PI3K α inhibitors

- 2009-2011, Side project, Modeling the protonation states of β -secretase Binding Pocket, University of Nebraska Medical Center
 - Molecular Dynamic simulations for 16 models of β -secretase protein using the AMBER 10 package
 - Docking studies using Glide dock in MAESTRO

2004 - 2007, **Lecturer, College of Pharmacy, Al-Zaytoonah Private University of Jordan, Amman, Jordan**

2001-2003 **MS Student, College of Pharmacy, University of Jordan, Amman, Jordan**

- Synthesis of novel nitrofurans derivatives
- Microbiological assays against bacteria, fungi, and yeast

1996 – 2004, **Teaching Assistant, College of Pharmacy, AL-Zaytoonah Private University of Jordan, Amman, Jordan**

EDUCATION

- 2007-2012** Ph.D. in Pharmaceutical Sciences, University of Nebraska Medical Center (UNMC), NE, USA. Thesis Supervisors: Profs. Jonathan L. Vennerstrom & Haizhen Zhong. Thesis Title: Computational Studies and Inhibitors Design of PI3K α .
- 2001-2003** M.S. in Pharmaceutical Sciences, University of Jordan (UJ), Amman Jordan. Thesis Supervisor: Professor Ali M. Qaisi. Thesis Title: Synthesis of Some Novel Nitrofurans Derivatives of Potential of Potential Antimicrobial Activity.
- 1991- 1996** Bachelor of Pharmacy, University of Jordan (UJ), Amman Jordan.
- 1977-1991** All School Stages, Rosary College School, Shmeisani, Amman Jordan.

PEER REVIEWED ABSTRACTS (21 PUBLISHED ABSTRACTS)

1. The University of Jordan School of Pharmacy, The 4th international Conference & the 2nd Conference of the Association of Faculties of Pharmacy at Jordanian Universities " *Excellence in Pharmacy Education & Research: A Quality Approach*", October 25-27th

2016, Amman, Jordan. Oral Presentation: Modeling The Protonation States of β -secretase Binding Pocket Employing Molecular Dynamic Simulations and Docking Studies

Dima A. Sabbah and Haizhen Zhong

2. The University of Jordan School of Pharmacy, The 4th international Conference & the 2nd Conference of the Association of Faculties of Pharmacy at Jordanian Universities "Excellence in Pharmacy Education & Research: A Quality Approach", October 25-27th 2016, Amman, Jordan. Poster Presentation: Structure-Based Drug Design, Synthesis, and Biological Evaluation of Benzoin Analogues as Potential PI3K α Inhibitors.

Dima A. Sabbah, Musaab Saada, Reema Abu Khalaf, Sanaa Bardaweel, Kamal Sweidan, Tariq Al-Qirim, Amani Al-Zughier, Heba Abdel Halim, Ghassan Abu Sheikha

3. ASU Second Symposium "Recent Trends in Postgraduate Research", December 5-6th 2015, Amman, Jordan. Poster Presentation: Structure-Based Drug Design, Synthesis, and Biological Evaluation of Novel Benzoin Derivatives as anticancer agents

Musaab Saada, **Dima A. Sabbah**, Reema Abu Khalaf, Sanaa Bardaweel, Kamal Sweidan, Tariq Al-Qirim, Amani Al-Zughier, Heba Abdel Halim, Ghassan Abu Sheikha

4. Al-Zaytoonah University of Jordan and the University of Toledo International Pharmaceutical Conference (ZTIPC 2015) "Frontiers in the pharmaceutical sciences and pharmacy practice: A global perspective", October 21-23rd, 2015, Amman, Jordan. Oral Presentation: From Hit to Lead: Structure-Based Drug Design, Synthesis, and Biological Evaluation of Novel Benzoin Derivatives as PI3K α Inhibitors.

Dima A. Sabbah, Musaab Saada, Reema Abu Khalaf, Sanaa Bardaweel, Kamal Sweidan, Tariq Al-Qirim, Amani Al-Zughier, Heba Abdel Halim, Ghassan Abu Sheikha

5. Computer Aided Drug Design: New Frontiers in computer-Aided Drug Design, July 19-24th, 2015, VT, USA. Poster Presentation: Design, Synthesis and Biological Evaluation of Novel PI3K Alpha Inhibitors with Potential Anti-Cancer Activity.

Ghassan Abu Sheikha, **Dima A. Sabbah**, Reema Abu Khalaf, Tariq Al-Qirim, Sanaa Bardaweel

6. Ligand Recognition & Molecular Gating: Structure and Dynamics of Ion Channels, G-Protein Coupled Receptors, and Solute Transporters, March 23-28th, 2014, Ventura, CA. Poster Presentation: Design, Synthesis, and Biological Evaluation of a New Series of Potential CETP Inhibitors.

*Ghassan Abu Sheikha, Reema Abu Khalaf, **Dima A. Sabbah***

7. The 15th Scientific Congress of the Jordanian Pharmacists Association, April 3-5th, 2014, Amman, Jordan. Oral Presentation: Structure-Based Drug Design, Synthesis, and Biological Evaluation of a Novel Scaffold for PI3K α Inhibitors.

*Bayan S. Hishmah, **Dima A. Sabbah**, Ghassan M. Abu Sheikha*

8. The 15th Scientific Congress of the Jordanian Pharmacists Association, April 3-5th, 2014, Amman, Jordan. Poster Presentation: Ligand-Based Drug Design: Pharmacophore Model and Database Search of Novel PI3K α Inhibitors.

***Dima A. Sabbah**, Neka A. Simms, Wang Wang, Yuxiang Dong, Edward L. Ezell, Michael G. Brattain, Jonathan L. Vennerstrom, Haizhen A. Zhong*

9. The Bioinformatics Symposium, March 4th, 2014, Zarqa University, Amman, Jordan. Oral Presentation: Structure-Based Drug Design: Molecular Docking Studies of Phosphoinositide-3-Kinases.

***Dima A. Sabbah**, Jonathan L. Vennerstrom, and Haizhen Zhong*

10. The Cancer Symposium, May 15th, 2013, Al-Zaytoonah University of Jordan, Amman, Jordan. Oral Presentation: *N*-Phenyl-4-hydroxy-2-quinolone-3-carboxamides as selective inhibitors of mutant H1047R PI3K α .

***Dima A. Sabbah**, Neka A. Simms, Wang Wang, Yuxiang Dong, Edward L. Ezell, Michael G. Brattain, Jonathan L. Vennerstrom, Haizhen A. Zhong*

11. The 47th ACS Midwest Regional Meeting, October 24-27th, 2012, Omaha, NE. Poster Presentation: Binding selectivity studies of phosphoinositide 3-kinases using free energy calculations.

Dima A. Sabbah, Jonathan L. Vennerstrom, Haizhen A. Zhong

12. The 44th annual PGSRM, June 7-9th, 2012, University of Nebraska Medical Center, Omaha, NE. Poster Presentation: Structure-based drug design, synthesis, and biological evaluation of a novel scaffold for PI3 α inhibitors.

Dima A. Sabbah, Neka A. Simms, Wang Wang, Yuxiang Dong, Edward L. Ezell, Michael G. Brattain, Jonathan L. Vennerstrom, Haizhen A. Zhong

13. The Nebraska Academy of Sciences, April 20th, 2012, Lincoln, NE. Oral Presentation: Synthesis, biological evaluation, and molecular docking studies of novel phosphoinositide-3-kinase (PI3 α) inhibitors.

Dima A. Sabbah, Neka A. Simms, Michael G. Brattain, Jonathan L. Vennerstrom, Haizhen A. Zhong

14. ACS Denver National Meeting, August 28 – September 1st, 2011, Denver, CO. Poster Presentation: Investigation of phosphoinositide 3-kinases binding pocket using mm-pbsa.

Dima A. Sabbah, Jonathan L. Vennerstrom, Haizhen A. Zhong

15. TeraGrid '11, July 18-21st, 2011, Salt Lake City, Utah. Poster Presentation: Modeling of PI3K using Molecular Dynamic Simulations on UNL Cluster.

Dima A. Sabbah, Jonathan L. Vennerstrom, Haizhen A. Zhong

16. The Nebraska Academy of Sciences, April 15th, 2011, Lincoln, NE. Oral Presentation: Determination of β -secretase binding site charge employing MD simulation and molecular docking.

Dima A. Sabbah, Jonathan L. Vennerstrom, Haizhen A. Zhong

17. ACS Anaheim National Meeting, March 27-30th, 2011, Anaheim, CA. Poster Presentation: Discovery of Novel Inhibitors of Phosphoinositide-3-Kinases.

Dima A. Sabbah, Neka A. Simms, Michael G. Brattain, Jonathan L. Vennerstrom, Haizhen A. Zhong

18. The 45th Midwest Regional Meeting of the ACS, October 27-30th, 2010, Wichita, KS. Poster Presentation: Pharmacophore Model, Database Search, Docking Study and Biological Assays for Novel PI3K α Inhibitors.

Dima A. Sabbah, *Neka A. Simms, Michael G. Brattain, Jonathan L. Vennerstrom, Haizhen A. Zhong*

19. AAPS Graduate Student Symposium in Drug Design and Discovery, November 8-12th, 2009, Los Angeles, CA. Oral and Poster Presentations: Selectivity Studies of PI3K Inhibitors by Molecular Docking. This work is honored by the AAPS. "Graduate Student Symposium Award in Drug Design & Discovery"

Dima A. Sabbah, *Jonathan L. Vennerstrom, Haizhen Zhong*

20. The Nebraska Academy of Sciences, April 17th, 2009, Lincoln, NE. Oral Presentation: Homology Modeling and Docking Studies of PI3K α/γ .

Dima A. Sabbah, *Jonathan L. Vennerstrom, Haizhen Zhong*

21. The 43rd ACS Midwest Regional Meeting, October 8-11th, 2008, Kearney, NE. Oral Presentation: Computational Studies and Inhibitors Design of PI3K α .

Dima A. Sabbah, *Jonathan L. Vennerstrom, Haizhen Zhong*

**PEER REVIEWED SCIENTIFIC ARTICLES (13 SUBMITTED/ ACCEPTED/
PUBLISHED PEER REVIEWED ARTICLES)**

1. Abu Khalaf, R., Al-Rawashdeh S., **Sabbah D.**, Abu Sheikha G. Molecular Docking and Pharmacophore Modeling Studies of Fluorinated Benzamides as Potential CETP Inhibitors. *J. Med. Chem.* *Accepted*.
2. **Sabbah, D. A.**, Zhong H. Modeling the Protonation States of β -Secretase Binding Pocket by Molecular Dynamics Simulations and Docking Studies. *J. Mol. Graph. Model.* 2016, 68, 206-215

3. Sweidan K., **Sabbah D. A.**, Bardaweel S., Dush K. A., Sheikha G.A., Mohammad S. Mubarak. Computer-Aided Design, Synthesis, and Biological Evaluation of New Indole-2-Carboxamide Derivatives as PI3K α /EGFR Inhibitors. *J. Bioorg. Med. Chem. Lett.* 2016, 26, 2685-2690
4. **Sabbah D. A.**, Hu J., Jian Hu, Zhong H.A. Advances in the Development of Class I Phosphoinositide 3-Kinase (PI3K) Inhibitors. *Curr. Top. Med. Chem.* 2016, 16, 1-14.
5. **Sabbah D. A.**, Saada M., Abu Khalaf R., Bardaweel S., Sweidan K., Al-Qirim T., Al-Zughier A., Abdel Halim H., Abu Sheikha G. Molecular modeling based approach, synthesis, and cytotoxic activity of novel benzoin derivatives targeting phosphoinositide 3-kinase (PI3K α). *J. Bioorg. Med. Chem. Lett.* 2015, 25, 3120-3124.
6. Abu Khalaf R., Jarekji Z., Al-Qirim T., **Sabbah D.**, Shattat G. Pharmacophore modeling and molecular docking studies of acridines as potential DPP-IV inhibitors. *Can. J. Chem.* 2015, 93, 721-929.
7. Sweidan K., **Sabbah D. A.**, Engelmann J., Abdel-Halim, H., Abu Sheikha G. Computational Docking Studies of Novel Heterocyclic Carboxamides as Potential PI3K α Inhibitors. *Lett. Drug Des. Discov.* 2015, 12, 1-8.
8. Sweidan K., Engelmann J., Abu Rayyan W., **Sabbah D.**, Abu Zarga M., Al-Qirim T., Al-Hiari Y., Abu Sheikha G., Shattat G. Synthesis and Preliminary Biological Evaluation of New Heterocyclic Carboxamide Models. *Lett. Drug Des. Discov.* 2015, 12, 417-429.
9. **Sabbah D.A.**, Vennerstrom J.L., Zhong H. Binding Selectivity Studies of Phosphoinositide 3-Kinases Using Free Energy Calculations. *J. Chem. Inf. Model.* 2012, 52, 3213–3224
10. **Sabbah D.A.**, Simms N.A., Dong, Y., Ezell, E.L., Brattain M.G., Vennerstrom J.L., Zhong H. *N*-phenyl-4-hydroxy-2-quinolone-3-carboxamides as selective inhibitors of

- mutant H1047R phosphoinositide-3-kinase (PI3K α). *J. Bioorg. Med. Chem.* 2012, 20, 7175-7183.
11. **Sabbah D.A.**, Simms N.A., Brattain M.G., Vennerstrom J.L., Zhong H. Biological evaluation and docking studies of recently identified inhibitors of phosphoinositide-3-kinases. *J. Bioorg. Med. Chem. Lett.* 2012, 22, 876-880.
 12. **Sabbah D.A.**, Brattain M.G., Zhong H. Dual Inhibitors of PI3K/mTOR or MTOR-Selective Inhibitors: Which way Shall We Go? *J. Current Medicinal Chemistry* 2011, 18, 5528-5544.
 13. **Sabbah D.A.**, Vennerstrom J.L., Zhong H. Docking Studies on Isoform-Specific Inhibition of Phosphoinositide-3-Kinases. *J. Chem. Inf. Model.* 2010, 50, 1887-1898.

INVITED PEER REVIEWED BOOK CHAPTERS (1 in revision)

1. Chapter in a book: Drug Design and Discovery Targeting Phosphatidylinositol-3-kinases. The book name is: Practical Applications in Structure-Based Drug Design book. (In revision).

EDITORIAL MEMBER

- Advances in Modern Oncology Research Journal
- Gavin Journal of Oncology Research and Therapy
- SciFed Journal of Pharmaceutical Research

PEER REVIEWER

- Bioorganic Medicinal Chemistry Letter
- European Journal of Medicinal Chemistry
- Current Topics in Medicinal Chemistry
- Research & Reviews: Journal of Pharmaceutical Quality Assurance
- Jordan Journal of Pharmaceutical Sciences
- Anti-Cancer Agents in Medicinal Chemistry
- Research on Chemical Intermediates

AWARDS

- 2012 ADDF Young Investigator Scholarship
- 2011 COMP's Denver National Meeting Brochure Cover Image Contest
- 2011 Open Science Grid Summer School and TeraGrid '11 Conference Attendance
- 2009 AAPS Graduate Student Symposium Award in Drug Design & Discovery

GRADUATE ASSISTANTSHIPS & FELLOWSHIPS

- 2010-2012: Bukey Fellowship
- 2007-2012: Graduate Studies Research Assistantship

AFFILIATIONS

- American Chemical Society
- American Association of Pharmaceutical Scientists
- Jordan Pharmaceutical Association

INFORMATION TECHNOLOGY SKILLS

- Molecular Modeling Software (MOE, MAESTRO , PYMOL and AMBER)
- MS Word, MS Excel, Power Point
- Basic Internet Skills

REFERENCES

- Professor Ghassan Abu Sheikha, Al-Zaytoonah University of Jordan, College of Pharmacy, office phone number: 0096264291511 Ext (305), email: pharmacy@zuj.edu.jo, address: P.O. Box 130 Amman 11733 Jordan
- Professor Abeer Al-Ghananeem, Sullivan University, College of Pharmacy, Cell: 502 424 9298, email: aalghananeem@sullivan.edu, address: 2100 Gardiner Lane, Louisville, KY 40205, USA

- Professor Jonathan Vennerstrom, University of Nebraska Medical Center, College of Pharmacy, office phone number: 402 559 5362, email: jvenners@unmc.edu, address: 986025 Nebraska Medical Center, Omaha, NE 68198-6025, USA
- Professor Edward Roche, University of Nebraska Medical Center, College of pharmacy, office phone number: 402 559 4645, email: eroche@unmc.edu, address: 986025 Nebraska Medical Center, Omaha, NE 68198-6025, USA
- Professor Haizhen Zhong, University of Nebraska at Omaha, Chemistry Department, office phone number: 402 554 3145, email: hzhong@unomaha.edu, address: 6001 Dodge Street, Omaha, NE 68182, USA