Dima Azzam Sabbah

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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 Supervisor.
- Starting my Project with Proposal Title: Design, Synthesis, and Biological Evaluation of PI3K Inhibitors.

- **SUPERVISING & MENTORING EXPERIENCE**
  - 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 (PI3Kα) 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*)
- **COMMITTEE EXPERIENCE:**
  - The Chair of the Laboratory and Devices Committee.
  - Past: The Chair of the Conference Committee:
  - Organized One day symposium on Cancer, May 15, 2013 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 PI3Kα 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 (ΔΔ 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 PI3Kα 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 nitrofuran 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 and Haizhen Zhong. Thesis Title: Computational Studies and Inhibitors Design

of PI3Kα.

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 Nitrofuran 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 (17 PUBLISHED ABSTRACTS)

1. Computer Aided Drug Design: New Frontiers in computer-Aided Drug Design, July 19-24, 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*

2. 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***

3. 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 PI3Kα Inhibitors.

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

4. 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 PI3Kα Inhibitors.

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

5. 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*

6. 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 PI3Kα.

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

7. 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*

8. The 44th annual PGSRM, June 7th-9th, 2012, University of Nebraska Medical Center, Omaha, NE. Poster Presentation: Structure-based drug design, synthesis, and biological evaluation of a novel scaffold for PI3kα 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 Nebraska Academy of Sciences, April 20th, 2012, Lincoln, NE. Oral Presentation: Synthesis, biological evaluation, and molecular docking studies of novel phosphoinositide-3-kinase (PI3kα) inhibitors.

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

10. 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*

11. TeraGrid '11, July 18th-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*

12. 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*

13. ACS Anaheim National Meeting, March 27th-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*

14. The 45th Midwest Regional Meeting of the ACS, October 27th-30th, 2010, Wichita, KS .Poster Presentation: Pharmacophore Model, Database Search, Docking Study and Biological Assays for Novel PI3Kα Inhibitors.

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

15. AAPS Graduate Student Symposium in Drug Design and Discovery, November 8th-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*

16. The Nebraska Academy of Sciences, April 17th, 2009, Lincoln, NE. Oral Presentation: Homology Modeling and Docking Studies of PI3Kα/γ.

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

17. The 43rd ACS Midwest Regional Meeting, October 8th-11th, 2008, Kearney, NE. Oral Presentation: Computational Studies and Inhibitors Design of PI3Kα.

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

PEER REVIEWED SCIENTIFIC ARTICLES (10 SUBMITTED/ ACCEPTED/ PUBLISHED PEER REVIEWED ARTICLES)

1. **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.

2. **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 phosphoinostide 3-kinase (PI3Kα). *J. Bioorg. Med. Chem. Lett.*2015, 25, 3120-3124.

3. 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.

4. Sweidan K., **Sabbah D. A.**, Engelmann J., Abdel-Halim, H., Abu Sheikha G. Computational Docking Studies of Novel Heterocyclic Carboxamides as Potential PI3Kα Inhibitors. *Lett. Drug Des. Discov.*2015, 12, 1-8.
5. 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.
6. **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
7. **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 (PI3Kα). *J. Bioorg. Med. Chem.*2012, 20, 7175-7183.
8. **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.
9. **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.
10. **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).

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

GRANTS

- Al-Zaytoonah University of Jordan, the Deanship of Scientific Research (108,000 JD)
- University of Jordan, Hamdi Mango Center for Scientific Research (5000JD).

GRADUATE ASSISTANTSHIPS & FELLOWSHIPS

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

AFFLIATIONS

- 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 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