Yaser Abdel-Karem, *PhD*

Associate Professor of Bioorganic and Medicinal Chemistry

University Contact Information

Pharm. Chem. Dept., Faculty of Pharmacy, Assiut University, Assiut, Egypt

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Google Scholar: https://scholar.google.com/citations?hl=en&tzom=-120&user=BSZuFaUAAAAJ&sortby=pubdate&view_op=list_works&gmla=AOV7GLNv-QcYU2MIMf0jhZyMcs6wG-bR6iCjRAB3RNXXcUuSrVTFZT2rvPeU0sk3m3zZ5-uAM4zORkESf-tY19An&gmla=AOV7GLMXHCauX_U3th608VRsnYCZAlG7CppAlREZjF1_-LdywP--vMQZ2FzCZIzpJdfGEyl9gdiMlEU811KkLoQzV1mDunFuC7nd7BLU_Uc&sciund=2124348387570174872; Research gate: https://www.researchgate.net/profile/Yaser_Abdel-Karem; ORCID ID: https://orcid.org/0000-0002-9700-8724

Summary Statement

The main objective of my work is to develop new lead compounds, which can be furtherly, developed and tested clinically as antiproliferative agents. Right now, i am pursuing a career in academia as a researcher and as an instructor of bioorganic and medicinal chemistry at various pharmacy schools.

Education / Qualifications

- **From 05/2010 – 05/2014**

Institution: University of Waterloo, Waterloo, ON, Canada – Faculty of Science/Dept. of Chemistry

Degree: Philosophy Doctorate of Chemistry

Graduation: Winter 2014

Dissertation: Design, Synthesis, and Evaluation of Inhibitors of Steroid Sulfatase

Ph.D. Graduate level cumulative average is 88.83%

- **From 04/2003 – 08/2007**

Institution: Assiut University, Assiut, Egypt – Faculty of Pharmacy/Dept. of Pharm. Org. Chem.

Degree: Master of Pharm. Org. Chem.

Graduation: Summer 2007

Dissertation: Design and synthesis of certain new 1,2,4-triazolo[1,5-a]pyrimidine derivatives of

potential antimicrobial activity

M.Sc. Graduate level cumulative average is 84.6%

- **From 09/1997 – 08/2002**

Institution: Assiut University, Assiut, Egypt – Faculty of Pharmacy

Degree: Bachelor of Pharmaceutical Sciences

Graduation: Summer 2002

B.Sc. Undergraduate level cumulative average is 83.7%

Publications and Running Research

1. Novel piperine-carboximidamide hybrids: Design, synthesis, and antiproliferative activity via a multi-targeted inhibitory pathway. Lamya H Al-Wahaibi, Mohamed A Mahmoud, Yaser A Mostafa, Ali E Raslan, Bahaa GM Youssif. Journal of Enzyme Inhibition and Medicinal Chemistry 38 (2023), 376-386.

2. The design, synthesis, biological evaluation, and molecular docking of new 5-aminosalicylamide-4-thiazolinone hybrids as anticancer agents. Hajjaj H. M. Abdu-Allah Shimaa A. Othman, Ola F. Abou-Ghadir, Wafaa S. Ramadan, Yaser A. Mostafa, Raafat El-Awady. e2300315 (2023).

3. Antitrypanosomal potential of the red sea soft coral Nephthea mollis supported by metabolomics profiling and molecular docking studies. Khaled M Allam, Yaser A Mostafa, Usama R Abdelmohsen, Amgad IM Khedr, Ahmed E Allam, Ehab S Elkhayat, Mostafa A Fouad. 13 (2023) 270-281.

4. Discovery of new cyanopyridine/chalcone hybrids as dual inhibitors of EGFR/BRAFV600E with promising antiproliferative properties. Hesham A Abou-Zied, Eman AM Beshr, Hesham AM Gomaa, Yaser A Mostafa, Bahaa GM Youssif, Alaa M Hayallah, Mohamed Abdel-Aziz. Archiv der Pharmazie 356 (2023), 2200464.

5. Diterpenoids profile of the marine sponge Chelonaplysilla erecta and candidacy as potential antitumor drugs investigated by molecular docking and pharmacokinetic studies. Nada Mohamed Abdel-Wahab, Alshymaa Abdel-Rahman Gomaa, Yaser A Mostafa, Dina Hajjar, Arwa A Makki, Eman Alaaeldin, Hesham Refaat, Gerhard Bringmann, Ahmed Zayed, Usama Ramadan Abdelmohsen, Eman Zekry Attia. Natural Product Research 37 (2023), 598-602.

6. Synthesis of novel amidines via one-pot three component reactions: Selective topoisomerase I inhibitors with antiproliferative properties. Essmat M El-Sheref, Hendawy N Tawfeek, Alaa A Hassan, S Bräse, Mohammed AI Elbastawesy, Hesham AM Gomaa, Yaser A Mostafa, Bahaa GM Youssif. Frontiers in Chemistry 10 (2022), 1039176.

7. Metabolomic Profiling, In Vitro Antimalarial Investigation and In Silico Modeling of the Marine

Actinobacterium Strain Rhodococcus sp. UR111 Associated with the Soft Coral Nephthea sp. Noha M Gamaleldin, Hebatallah S Bahr, Yaser A Mostafa, Bryant F McAllister, Amr El Zawily, Che J Ngwa, Gabriele Pradel, Hossam M Hassan, Usama Ramadan Abdelmohsen, Dalal Hussien M Alkhalifah, Wael N Hozzein. Antibiotics 11 (2022), 1631.

8. Design, synthesis, crystal structures and biological evaluation of some 1,3-thiazolidin-4-ones as dual CDK2/EGFR potent inhibitors with potential apoptotic antiproliferative effects. Hendawy N Tawfeek, Alaa A Hassan, S Bräse, M Nieger, Yaser A Mostafa, Hesham AM Gomaa, Bahaa GM Youssif, Essmat M El-Shreef. Arabian journal of chemistry 15 (2022), 104280.

9. Combretastatin A-4 analogs: Past, present, and future directions. Muhamad Mustafa, Yaser A. Mostafa, Atef E. Abd Elbaky, Mahmoud Mohamed, Dalia Abdelhamid, ElShimaa M. N. Abdelhafez, Omar M. Aly. octahedron drug research 1 (2022), 55-64.

10. Novel indazole derivatives as potent apoptotic antiproliferative agents by multi-targeted mechanism: Synthesis and biological evaluation. Firas Obaid Arhema Frejat, Hongjin Zhai, Yaquan Cao, Lihong Wang, Yaser A Mostafa, Hesham AM Gomaa, Bahaa GM Youssif, Chunli Wu. Bioorganic Chemistry 126 (2022), 105922.

11. Synthesis and Biological Evaluation of Indole-2-Carboxamides with Potent Apoptotic Antiproliferative Activity as EGFR/CDK2 Dual Inhibitors. Lamya H Al-Wahaibi, Yaser A Mostafa, Mostafa H Abdelrahman, Ali H El-Bahrawy, Laurent Trembleau, Bahaa GM Youssif. Pharmaceuticals 15 (2022), 1006.

12. Wound healing and Antioxidant Capabilities of Zizyphus mau-2 ritiana Fruits. In-vitro, In-vivo, and Molecular Modeling Study. Nourhan Hisham Shady, Raya Soltane, Sherif A. Maher, Entesar Ali Saber, Mahmoud A. Elrehany, Yaser A. Mostafa, Ahmed M. Sayed, Usama Ramadan Abdelmohsen. *Plants* 11 (**2022**), 1392.

13. Antioxidant and Wound Healing Potential of Vitis vinifera Seeds Supported by Phytochemical Characterization and Docking Studies. Tarfah Al-Warhi, Eman Maher Zahran, Samy Selim, Mohammad M. Al-Sanea, Mohammed M. Ghoneim, Sherif A. Maher, Yaser A. Mostafa, Faisal Alsenani, Mahmoud A. Elrehany, Mohammed S. Almuhayawi, Soad K. Al Jaouni, Usama Ramadan Abdelmohsen, Abeer H. Elmaidomy. *Antioxidants* 11 (**2022**), 881.

14. Diterpenoids profile of the marine sponge Chelonaplysilla erecta and candidacy as potential antitumor drugs investigated by molecular docking and pharmacokinetic studies. Nada Mohamed Abdel-Wahab, Alshymaa Abdel-Rahman Gomaa, Yaser A. Mostafa, Dina Hajjar, Arwa A. Makki, Eman Alaaeldin, Hesham Refaat, Gerhard Bringmann, Ahmed Zayed, Usama Ramadan Abdelmohsen & Eman Zekry Attia. *Natural Product Research* **2022**, AHEAD-OF-PRINT, 1-5.

15. Anti-Trypanosomal Potential of The Red Sea Soft Coral Nephthea Mollis Supported by Metabolomic Profiling and Molecular Docking Studies. Khaled M. Allam, **Yaser A. Mostafa**, Usama R. Abdelmohsen, Amgad I.M. Khedr, Ahmed E. Allam, Mostafa A. Fouad, Ehab S. Elkhayat. *Research Square* (**2022**) Preprints

16. Discovery of new pyrimido[5,4-c]quinolines as potential antiproliferative agents with multitarget actions: Rapid synthesis, docking, and ADME studies. Ramadan A. Mekheimer, Samar M.R. Allam, Mariam A. Al-Sheikh, Moustafa Sh. Moustafa, Saleh M. Al-Mousawi, **Yaser A. Mostafa**, Bahaa G.M. Youssif, Hesham A.M. Gomaa, Alaa M. Hayallah, Mohamed Abdelaziz, Kamal U. Sadek. *Bioorganic Chemistry* 121(**2022**) 105693.

17. Discovery of Novel Oxazole-Based Macrocycles as AntiCoronaviral Agents Targeting SARS CoV-2 Main Protease. Lamya H. Al-Wahaibi, Ahmed Mostafa, Yaser A. Mostafa, Ola F. Abou-Ghadir, Ahmed H. Abdelazeem, Ahmed M. Gouda, Omnia Kutkat, Noura M. Abo Shama, Mahmoud Shehata, Hesham A.M. Gomaa, Mostafa H. Abdelrahman, Fatma A. M. Mohamed, Xuyuan Gu, Mohamed A. Ali, Laurent Trembleau, Bahaa G. M. Youssif. *Bioorganic Chemistry* 116 (**2021**) 105363.

18. Novel 1,5-diaryl pyrazole-3-carboxamides as selective COX-2/sEH inhibitors with analgesic, anti-inflammatory, and lower cardiotoxicity effects. O. M. Hendawy, Hesham A.M. Gomaa, Sami I. Alzarea, Mutariah S. Alshammari, Fatma A.M. Mohamed, **Yaser A. Mostafa**, Ahmed H. Abdelazeem, Mostafa H. Abdelrahman, Laurent Trembleau, Bahaa G. M. Youssif. *Bioorganic Chemistry* 116 (**2021**) 105302.

19. FAK inhibitors as promising anticancer target: Present and future directions. Muhamad Mustafa, Amer Ali Abd El-Hafeez, Dalia A. Abdelhafeez, Dalia Abdelhamid, **Yaser A. Mostafa**, Pradipta Ghosh, Alaa M. Hayallah, Gamal El-Din A. Abuo-Rahma. *Future Medicinal Chemistry* 13(18) (**2021**) 1559.

20. A first-in-class anticancer dual HDAC2/FAK inhibitors bearing hydroxamates/benzamides capped by pyridinyl-1,2,4-triazoles. Muhamad Mustafa, Amer Ali Abd El-Hafeez, Dalia Abdelhamid, Gajanan D. Katkar, **Yaser A. Mostafa**, Pradipta Ghosh, Alaa M. Hayallah, Gamal El-Din A. Abuo-Rahma. *Eur. J. Med. Chem.* 222 (**2021**) 113569.

21. Muhamad Mustafa; Ahmed El-Kardocy; Yaser A Mostafa. *Monatshefte für Chemie - Chemical Monthly* 152 (**2021**) 137.

22. Hamada H. H. Mohammed, Samar H. Abbas, Alaa M. Hayallah, Gamal El-Din A. Abuo-Rahma, **Yaser A. Mostafa**; Novel Urea Linked Ciprofloxacin-Chalcone Hybrids having Antiproliferative Topoisomerases I/II Inhibitory Activities and Caspases-Mediated Apoptosis. *Bioorganic Chemistry* 106 (**2021**) 104422.

23. Ahmed El-Kardocy, **Yaser A. Mostafa**, Noha G. Mohamed, Mohammad Nabil Abo-Zeid, Nivin A. Hassan, Helal F. Hettae and Abu-Baker M. Abdel-Aal; CK2 inhibition, lipophilicity and anticancer activity of new N1 versus N2-substituted tetrabromobenzotriazole regioisomers. *New J. Chem.* 44, (**2020**) 13007.

24. Muhamad Mustafa and **Yaser A. Mostafa**; Antimicrobial Pyridazines: Synthesis, characterization, Cytotoxicity, Substrate Promiscuity, and Molecular Docking. *Chem. Biodiversity* 17, **(2020**) e2000100.

25. Muhamad Mustafa and **Yaser A. Mostafa**; A facile synthesis, drug-likeness, and in silico molecular docking of certain new azidosulfonamide–chalcones and their in vitro antimicrobial activity. *Monatshefte für Chemie - Chemical Monthly* 151 (**2020**) 417.

26. Ahmed El-kardocy, Muhamad Mustafa, Esam R. Ahmed, Samy Mohamady, **Yaser A. Mostafa**; Aryl azide-sulfonamide hybrids induce cellular apoptosis: synthesis and preliminary screening of their cytotoxicity in human HCT116 and A549 cancer cell lines**.** *Med. Chem. Res.* 28 (**2019**) 2088.

27. Khaled R.A. Abdellatifa,, Wael A.A. Fadaly, **Yaser A. Mostafa**, Dana M. Zaher, Hany A. Omar; Thiohydantoin derivatives incorporating a pyrazole core: Design, synthesis and biological evaluation as dual inhibitors of topoisomerase-I and cycloxygenase-2 with anti-cancer and anti-inflammatory activities. *Bioorg. Chem* 91 (**2019**) 103132142.

28. Yaser A. Mostafa, Praveen Nekkar, and Scott D. Taylor; A-ring Substituted 17 β-Arylsulfonamides of 17β-Aminoestra-1,3,5(10)-trien-3-ol as Highly Potent Reversible Inhibitors of Steroid Sulfatase, *Bioorg. Medicinal Chem.* 23(17) (**2015**) 5681.

29. Yaser A. Mostafa, Scott D. Taylor; Review: Steroid derivatives as inhibitors of steroid sulfatase, *J. Steroid Biochem. Mol. Biol.* 137 (**2013**) 183.

30. Yaser A. Mostafa, Scott D. Taylor; 17β-Arylsulfonamides of 17β-aminoestra-1,3,5(10)-trien-3-ol as highly potent inhibitors of steroid sulfatase, *Bioorg. Medicinal Chem.* 20(4) (**2012**) 1535.

31. Chau-Minh Phan, Yong Liu, Byoung-moo Kim, **Yaser Mostafa**, Scott D. Taylor; Inhibition of steroid sulfatase with 4-substituted estrone and estradiol derivatives, *Bioorg. Medicinal Chem.* 19(20), (**2011**) 5999.

32. Yaser A.-H. Mostafa, Mostafa A. Hussein, Awwad A. Radwan; Synthesis and antimicrobial activity of certain new 1,2,4-triazolo[1,5-a]pyrimidine derivatives, *Arch. Pharm. Res.* 31(3) (**2008**) 279.

Awards and Scholarships

- McNeil Award of Natural Product Chemistry Winter 2014 (University of Waterloo).
- International Doctoral Student Award from Spring 2011 till winter 2014 (University of Waterloo).

- Science Graduate Experience Award from Spring 2010 till winter 2014 (University of Waterloo).
- International Masters Student Award from Spring 2010 till spring 2011 (University of Waterloo).
- University of Waterloo Graduate Scholarship from Spring 2010 till Fall 2011 (University of Waterloo).
- Graduate Research Studentship from Winter 2011 till Winter 2014 (University of Waterloo).

Work Experience

- **From 09/2022 till now**

Badr University, Assiut, Egypt – Faculty of Pharmacy/Dept. of Pharm. Chem. – Associate Professor of Pharm. Org. Chem.

- **From 03/2022 till 08/2022**

Assiut University, Assiut, Egypt – Faculty of Pharmacy/Dept. of Pharm. Org. Chem. – Associate Professor of Pharm. Org. Chem.

- **From 02/2022 till 05/2022**

Postdoctoral fellowship of NSERC of Canada at Faculty of Science, University of Waterloo, Canada.

- **From 08/2020 – 01/2022**

Assiut University, Assiut, Egypt – Faculty of Pharmacy/Dept. of Pharm. Org. Chem.- Lecturer of Pharm. Org. Chemistry.

- **From 02/2018 – 08/2020**

Najran University, Najran, KSA – Faculty of Pharmacy/Dept. of Pharm. Chem. – Ass. Prof. of Pharm. Chem.

- **From 02/2017 – 02/2018**

Deraya University, New Al-Menya, Egypt – Faculty of Pharmacy/Dept. of Pharm. Chem.- Lecturer of Pharm. Org. Chemistry.

- **From 10/2014 – 01/2017**

Assiut University, Assiut, Egypt – Faculty of Pharmacy/Dept. of Pharm. Org. Chem.- Lecturer of Pharm. Org. Chemistry.

- **From 05/2014 – 09/2014**

Assiut University, Assiut, Egypt – Faculty of Pharmacy/Dept. of Pharm. Org. Chem.- Assistant Lecturer of Pharm. Org. Chemistry.

- **From 05/2010 – 04/2014**

University of Waterloo – Faculty of Science – Chem. Dept. – Teaching Assistant of 2nd , 3rd , and 4th year science students laboratory courses (Chem 262L, 265L, 360L, and 382L)

- **From 01/2003 – 04/2010**

Assiut University – Faculty of Pharmacy – Dept. of Pharm. Org. Chem. – Instructor of 1st and 2nd year pharmacy students laboratory courses (Pharm. Org. Chem.- 1, 2, 3, and 4).

- **From 06/2003 – 12/2009**

Community Pharmacist in Drug stores (night shifts)

- **From 09/2002 – 12/2002**

Assiut General Hospital – Pharmacist Dept. – Community Pharmacist

Conferences

- The First International Conference on Multidisciplinary Research in Ain Sukhna, Egypt (28 - 31/10/2015) – Poster on Site-Directed Synthesis of Steroid Sulfatase' Inhibitors; **Yaser A. Mostafa**, Alaa A.K. Hayalla, and Rania Bakry.

Workshops and Training Sessions

- NOAH sails on: NMR supersequences and multiple receivers in small mole analysis – SelectScience, UK (online) - 3 /11/ 2020.
- High Performance Liquid Chromatography (HPLC) – Basic Level - NAWAH – Scientific EGY (online) - 11-12 /11/ 2020.
- Simplify Volatiles Analysis Part 4: Chromatographically Challenging Analyses - SelectScience, UK (online) - 14 /11/ 2020.
- Improved LC-MS analysis of oligonucleotides with next-generation chromatography - SelectScience, UK (online) - 19 /11/ 2020.
- Computer-Aided Drug Design Using MOE Software – Faculty of Pharmacy, Nahda University in Beni Suef (NUB – EGY) - 22 /11/ 2020.
- Advanced & Modern NMR Techniques - NMR Unit Mansoura University – EGY (online) - 27-29/3/ 2021.
- Program accreditation - Quality Assurance and Accreditation Rehabilitation Center - Assiut University – 9/11/2020.
- Internal Audit - Quality Assurance and Accreditation Rehabilitation Center - Assiut University – 15/11/2020.

- Challenges facing the educational process in Egypt's vision 2030 - Quality Assurance and Accreditation Rehabilitation Center - Assiut University - 23/11/2020.
- Designing electronic tests - Measurement and Evaluation Center of Assiut University 26/1/2021.
- Preparing the test item for the medical sector - Measurement and Evaluation Center in the Higher Education Development Projects Management Unit - Ministry of Higher Education and Scientific Research on 24/5/2021.
- Presentations: The Center for Developing the Capabilities of Faculty Members and Leaders - Assiut University 1-3/11/2020.
- Fundamentals of IT -Faculty and Leadership Development Center - Assiut University 13-15/4/2021.
- Word - Faculty and Leadership Development Center - Assiut University 13-15/4/2021.
- Statistical analysis course in scientific research 14-15/1/2018.
- Publishing research in international journals 28-29/1/2018.
- Advanced E-Learning Course 15-16/5/2018.
- Scientific research funding cycle and grants 23-24/12/2018.
- Course on how to activate an electronic course 23-24/6/2019.
- Communication skills course in different types of education 3-4/12/2019.

Research Achievements

- **From 10/2014 – till up to date**

After Ph.D., I worked on various research projects with colleagues at different faculties in Egypt and USA. Most of these projects are focusing of incorporating SAR designed inhibition pharmacophores for various cancer targets such as aromatase, CK2a, topo-I and II, CAs, and HDAC/FAK. The other projects are studying various aryl sulfonamide scaffolds as selective antimicrobial agents with low or no cytotoxic side effects.

- **From 05/2010 – 04/2014**

During my Ph.D. graduate studies, I designed and synthesized new and highly potent inhibitors of steroid sulfatase, an enzyme which is one of the most recognizable enzymes that cause breast cancer especially in the postmenopausal women.

I tested the inhibitory activity of these compounds with steroid sulfatase, which i purified from human placenta, and most of the compounds were found to have inhibitory activity within the nano mole range. Moreover, 28 of these compounds have been chosen by the National Cancer Institute at the National Institutes of Health in USA to be tested as potential anti-cancer agents in a whole cancer cells.

- **From 04/2003 – 08/2007**

During the M.Sc. Graduate Studies, I synthesized 33 new 1,2,4-triazolo[1,5-a]pyrimidine derivatives of potential antimicrobial activity. These compounds were tested as a potential antibacterial agent against 6 different bacterial species representing the Gram +ve and Gram –ve strains, also were tested as a potential antifungal agents against Seven pathogenic, phytopathogenic or food poisoning Fungal species. Some of these compounds were more potent than ampicillin against *Staphylococcus aureus* and *Klebsilla pneumoniae*. Moreover, Most of the tested compounds were more potent than Fluconazole against *Candida albicans.*

Research Skills

- **Computer-Aided Drug Design (CADD)**

I'm using both Molecular Operating Environment (MOE) program and Accelrys Discovery Studio (DS) Program to investigate the molecular mechanics and dynamics from which I use to predict the conformation of the compounds that I will synthesize and to model conformational changes in the biological target that occur when these compounds will bind to it.

- **Organic Synthesis**

➢ Synthesis of various biologically-active compounds using simple and efficient synthetic methods.

➢ Structure elucidation of various prepared compounds using different spectroscopic techniques.

- **Biological and Biochemical skills**

➢ Separation, purification, and characterization of steroid sulfatase (STS) from human placenta.

➢ Performing different enzyme kinetics measurement techniques like determination of protein concentration, K_m, K_i, and IC_{50}.

➢ Measurement of antimicrobial activity of organic compounds using different in vitro techniques.

Affiliations

➢ Member of the Faculty of Pharmacy Quality Assurance and Accreditation Unit (QAA) from 10/2004 to 04/2010.

➢ Member of the Faculty of Pharmacy Quality Assurance Unit (QAU) Assiut University from 10/2014 to 01/2017.

➢ Member of Pharmacy Syndicate from 08/2002 till now.