

## May H. Abdelaziz, BPharm, MS, PhD

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### APPOINTMENTS

**Assistant Professor** (Tenure track) Jan 2018 - present  
*Pharmaceutical Sciences Department, Ben and Maytee Fisch College of Pharmacy*  
(FCOP), The University of Texas, Tyler (UT Tyler) – Tyler, TX

**Clinical Assistant Professor** (Non-tenure track) June 2017 - Dec 2017  
*Clinical Sciences Department, FCOP, UT Tyler – Tyler, TX*

### EDUCATION

**Doctor of Philosophy** Feb 2013  
Pharmaceutical Sciences – School of Pharmacy  
Virginia Commonwealth University (VCU)– Richmond, VA  
Dissertation title: *Kinetic and Thermodynamic Studies of Thrombin Inhibitors*

**Master of Science** June 2008  
Pharmaceutical Chemistry – School of Pharmacy  
Cairo University – Cairo, Egypt  
Thesis title: *Determination of Some Antifungal Agents*

**Bachelor of Pharmaceutical Sciences (with honors)** May 2002  
School of Pharmacy  
Cairo University – Cairo, Egypt

### RESEARCH EXPERIENCE

**Independent Research (UT Tyler)** June 2017 - present  
Leading a research program centered around drug discovery of chemotherapeutic agents in the cancer and infectious disease fields. Current projects include discovery of novel agents for disruption of HER receptors' kinase domains dimerization, protein engineering of artificial HER receptors, deciphering the bacterial systems linked to antibiotic resistance, designing resistance modifying agents to extend the efficacy of current antibiotics.

**Postdoctoral Fellow: University of California – San Francisco (UCSF)** 2015 – 2017  
**Advisor: Michelle Arkin**  
Investigated novel protein-protein interactions involved in the progression of glioblastoma and study the oncoproteins HER2 and HER3. The project involved expression, purification and characterization of proteins in E. Coli, yeast and insect cells and delineating their interactions in-vitro using several biophysical techniques.

**Postdoctoral Fellow: University of Utah (U of U)** 2013 – 2014

**Advisor: Christopher Reilly**

Responsible of screening libraries of natural products against a panel of TRP channels (TRPV1, TRPV3, TRPV4, TRPM8 and TRPA1) using mammalian cell-based assays. Identified hits were further characterized to determine their mode of action potency and selectivity.

**Doctoral Candidate: (VCU)** 2008 – 2013

**Advisor: Umesh Desai**

Developed the first in class small molecule allosteric thrombin inhibitors that interact with exosite II and deciphered the role of exosite II in thrombin allosteric network. Methodologies included enzyme kinetics, competitive assays, thrombin mutants screening, biophysical techniques like fluorescence binding, thermodynamic analysis and surface plasmon resonance as well as computer modeling (virtual libraries building and docking).

**Master student: (Cairo University – Cairo, Egypt)** 2003 – 2008

**Advisor: Samy Emara**

Developed new validated methods for determination of some antifungal agents in pure form, pharmaceutical dosage forms, metabolite detection and in biological fluids (serum and urine).

#### FUNDED GRANTS

NIAID/NIH 1R21AI154189-01A1 (\$380,750) Feb 2021 – Jan 2023

“Mechanistic Insights into VraS Mutations Linked to Bacterial Resistance”

Role: PI

FCOP Research and Scholarship Grant (**\$10,000**) July 2020 – Jun 2021

“VraS Mutant Inhibition and Recombineering Using CRISPR/Cas9 Counterselection”

Role: PI

American Chemical Society Bridge Travel Award (**\$2000**) Spring 2020

To: Elanzou Enoh (undergraduate student)

Role: Research supervisor

American Association of University Women (AAUW)

Research Publication Grant (**\$25,650**) July 2019 – June 2020

“Optimizing the expression of kinases in E. coli”

Role: PI

FCOP Research and Scholarship Grant (**\$22,500**) July 2018 – June 2020

“Designing Artificial EGF Receptors Capable of Spontaneous Dimerization”

Role: PI

UT Tyler New Faculty Grant (**\$10,000**) Sept 2018 – Aug 2019  
“Discovering Novel Allosteric Inhibitors of HER2 Homodimerization in Cancer”  
Role: PI

UT Tyler Undergraduate Research Award (**\$3,000**) Sept 2018 – Aug 2019  
“Designing Artificial EGF Receptors Capable of Spontaneous Dimerization”  
Role: Co-PI

#### PENDING GRANTS

FCOP Assessment Grant (**\$6,680**) July 2021 – June 2022  
“Prediction and Utilization of PCOA Scores in Fisch College of Pharmacy”  
Role: PI

#### PUBLICATIONS AND BOOK CHAPTERS

*#corresponding author, Student author*

Enzymatic Characterization of VraS Sensor Histidine Kinase from *Staphylococcus aureus* Reveals the Catalytic Requirements for Activity. S Bhattarai, A Gomez, A Sunderhaus, and **MH Abdel Aziz**<sup>#</sup>. Submitted for peer review.

Optimizing the expression of soluble, active, human kinases using specialized *E. coli* strains. R Imran, A Sunderhaus, A Adedeji, T Obafemi and **MH Abdelaziz**<sup>#</sup>. Under final revisions.

Expression of Human Kinases in Bacterial Host Systems: A Comprehensive Review. H Sibal, R Imran and **MH Abdel Aziz**<sup>#</sup>. Under preparation.

Engineering Soluble Artificial Receptor Tyrosine Kinase Mimics Capable of Spontaneous *in vitro* dimerization. A Sunderhaus, R Imran, A Goudelock, M Nassar, K Cooper, D Patterson, and **MH Abdel Aziz**<sup>#</sup>. *Biotechnol Bioeng.* (2021) 2020 Dec 17. doi: 10.1002/bit.27659

Expression and Purification of Active Human Kinases Using *Pichia pastoris* as A General-Purpose Host. **MH Abdel Aziz**<sup>#</sup>, Y Fan, L Liu, M Moasser, H Fu, N Jura, M Arkin. *Prot. Exp. Puri.* 179 (2021) 105780.

Onydecalsins, Fungal Polyketides with Anti-Histoplasma and Anti-TRP Activity. L Zhenjian, P Sujal, Z Lu, S Beyhan, **MH Abdel Aziz**, C Reilly, and EW Schmidt. *J. Nat. Prod.* 81(12) (2018) 2605-11.

Novel Heparin Mimetics Reveal Cooperativity Between Exosite 2 and Sodium-Binding Site of Thrombin. **MH Abdel Aziz** and UR Desai. *Thromb. Res.* 165 (2018) 61-67.

Drofenine: A 2-APB analog with improved selectivity for human TRPV3. CE Deering-Rice, VK Mitchell, EG Romero, **MH Abdel Aziz**, DA Ryskamp, D Križaj, RG Venkat, CA Reilly. *Pharma. Res. Per.* 2(5) (2014) e00062.

Oxazinin A, A Fungal Dimeric Polyketide. Z Lin, M Koch, **MH Abdel Aziz**, D Tianero, R Galindo, T Cheatham III, L Barrows, CA Reilly, E Schmidt. *Org. Lett.* 16 (18) (2014) 4774-77

Designing Allosteric Regulators of Thrombin: Exosite 2 Features Multiple Sub-Sites That Can Be Targeted by Sulfated Small Molecules for Inducing Inhibition. PS Sidhu<sup>\*</sup>, **MH Abdel Aziz**<sup>\*</sup>, A Sarkar, AY Mehta, Q Zhou, UR Desai. *J. Med. Chem.* 56 (12) (2013) 5059–70. <sup>\*</sup> Equally contributing authors.

Designing allosteric regulators of thrombin: Monosulfated benzofuran dimers selectively interact with Arg173 of exosite 2 to induce inhibition. **MH Abdel Aziz**, PS Sidhu, A Liang, JY Kim, PD Mosier, Q Zhou, DH Farrell, UR Desai. *J. Med. Chem.* 55 (2012) 6888 – 97.

Identification of the site of binding of sulfated low molecular weight lignins on thrombin. **MH Abdel Aziz**, PD Mosier, UR Desai. *Biochem. Biophys. Res. Commun.* 413 (2011) 348 – 52.

Rational design of potent, small, synthetic allosteric inhibitors of thrombin. PS Sidhu, A Liang, AY Mehta, **MH Abdel Aziz**, Q Zhou, UR Desai. *J. Med. Chem.* 54 (2011) 5522 – 31.

Sulfated, low-molecular-weight lignins are potent inhibitors of plasmin, in addition to thrombin and factor Xa: Novel opportunity for controlling complex pathologies. BL Henry, **MH Abdel Aziz**, Q Zhou, UR Desai. *Thrombosis and Haemostasis* 103 (2010) 507–15.

Cardiovascular Agents. UR Desai, R Al-Horani, AY Mehta and **MH Abdel Aziz** (2013). In *The Chemistry of Drugs for Nurse Anesthetists – 2<sup>nd</sup> Edition* (Eds. Drs. Lemont B. Kier and Cynthia Schiek), AANA Publishing, Park Ridge, IL.

## POSTERS/PRESENTATIONS

### Undergraduate student, PharmD student

Activation of VraS histidine kinase by T331I mutation linked to antibiotic resistance. Shrijan Bhattarai, Allison Sunderhaus, Lane Marsh, and May H. Abdel Aziz. Selected for “Live Poster” session in the ACS National Meeting. April 10, 2021.

Modulation of VraS Sensor Histidine Kinase Activity and Inhibition in Presence of its Response Regulator VraR. Lane Marsh, Shrijan Bhattarai, Allison Sunderhaus, Paul Epie, and May H. Abdel Aziz. Presented in the Texas Academy of Science. February 27, 2021.

Characterization of VraS Kinase Involved in Bacterial Resistance. Antonio Gomez, Shrijan Bhattarai, Vivian Ikegbunam, Allison Sunderhaus, and May H. Abdel Aziz. Presented in the UT

Tyler Lyceum, Tyler, TX. April 17, 2020. (**First place, Graduate Student Poster Award**).

The Cellular Effects of An Allosteric HER2 Homodimerization Inhibitor. Shrijan Bhattarai, Ramsha Imran and May H. Abdel Aziz. Presented in the UT Tyler Lyceum, Tyler, TX. April 17, 2020

Discovering novel anticancer allosteric inhibitors of HER2 homodimerization. H Sibal, O Oyerinde, P Amadi-Ohiri, PD Mosier, **MH Abdel Aziz**. Presented in the ACS National Meeting. March 22, 2020.

Optimizing the expression of soluble, active human kinases using specialized *E.coli* strains. R Imran, A Adedeji, T Obafemi, **MH Abdel Aziz**. Presented in the ACS National Meeting, Philadelphia, PA. March 22, 2020.

*De-novo* design and engineering of soluble artificial kinase receptor proteins. M. Nassar, D. Patterson and **MH Abdel Aziz**. Presented in the Texas Academy of Science Meeting, Nacogdoches, TX. February 28, 2020.

Discovering Potential Novel Allosteric Inhibitors of HER2 Homodimerization for Treatment of Cancer. PD Mosier and **MH Abdel Aziz**. Presented in the East Texas Research Conference. Tyler, TX. May 9, 2019.

Optimizing the Expression of Human Heparanase in Insect Cells. E Enoch; H Sibal, R Imran; and **MH Abdel Aziz**. Presented in the East Texas Research Conference. Tyler, TX. May 9, 2019.

Sulfated low molecular weight lignins bind to a specific pocket in thrombin exosite 2. **MH Abdel Aziz**, BL Henry, PD Mosier, UR Desai. Presented in *ACS Southeastern Regional Meeting*. Richmond, VA. October 27, 2011.

Identification of the site of binding of sulfated low molecular weight lignins on thrombin. **MH Abdel Aziz**, JN Thakkar, BL Henry, A Liang, PD Mosier, UR Desai. Presented in the *Virginia Academy of Sciences meeting*. Richmond, VA. May 26, 2011.

#### TEACHING EXPERIENCE (in Team-Based Learning format)

*Coordinator and Instructor, Introduction to medicinal Chemistry (UT Tyler)* (2019 - present)

*Coordinator and Instructor, Integrated Lab 12 (UT Tyler)* (Spring and Fall 2018)

*Instructor, Integrated Pharmacy Courses (UT Tyler)* (2017 - present)

Develop and conduct medicinal chemistry modules and integrated content with pharmacology, pathophysiology, and pharmacotherapy instructors. Several pharmacotherapy modules were taught including cardiovascular, endocrinology, infectious diseases, neuroleptics and centrally acting agents and oncology courses.

<b><i>Trainer, NIH Programs of Excellence in Glycosciences (VCU)</i></b>	Spring 2013
Experimental design and training of visiting scholars on capillary electrophoresis and surface plasmon resonance techniques in glycobiology.	
<b><i>Tutor, Medicinal Chemistry for Nurse Anesthesia (VCU)</i></b>	Spring 2011
<b><i>Medicinal Chemistry Teaching Assistant (VCU)</i></b>	2008 – 2011
Foundations I and II Applications of Pharmaceutical Analysis/Skills Lab III Molecular Modeling	
<b><i>Pharmaceutical Chemistry Lab Instructor (MIU)</i></b>	2002 – 2008
Pharmaceutical Chemistry I and II, and Drug Design	

**RESEARCH FOCUSED SERVICE**

<i>Research Advisor for UT Tyler Presidential Fellows</i>	Fall 2019–present
<i>Vice-Chair, UT Tyler Research Council (member since 2019)</i>	2020/2021
<i>Graduate School Representative in dissertation committees (1)</i>	Fall 2018–present
<i>Reviewer for PLoS One and Currents in Pharmacy Teaching and Learning journals</i>	2018–present
<i>Developed FCOP research initiative for UT Tyler strategic plan</i>	Fall 2017
<i>Member in the Faculty Senate task force for Interdisciplinary Research (UT Tyler)</i>	2017/2018
<i>Member in FCOP Research Lab Design ad-hoc committee (UT Tyler)</i>	2017/2018
<i>Member in Central Lab Manager search committee (UCSF)</i>	Fall 2016
<i>Judge, UT Tyler Lyceum</i>	2019–present

**PROFESSIONAL AND ACADEMIC FOCUSED SERVICE**

<i>UT Tyler Diversity and Inclusion committee</i>	2020/2021
<i>Chair, Curriculum Committee (member since 2018) (FCOP)</i>	2020/2021
<i>Member in AACP Accreditation Self Study committee (UT Tyler)</i>	2017-2019
<i>Member in AACP Accreditation Steering committee (UT Tyler)</i>	2020-2021
<i>Member in Faculty Search Committee (FCOP)</i>	2019–2021
<i>Abstract Reviewer for the AACP Annual Meeting</i>	Spring 2020–present
<i>Book Reviewer for John Wiley &amp; Sons</i>	Spring 2019
<i>Member in Wellness Taskforce (FCOP)</i>	2019–present
<i>Member in OSCE Committee (FCOP)</i>	2018/2019
<i>Reviewer for AACP Express Script Scholar Program</i>	Sept 2019
<i>President, Graduate Students Association (VCU)</i>	2011/2012
<i>International Pharmacy Student advisor (MIU)</i>	2005 – 2008
<i>Member, Quality Assurance of Academic Education (MIU)</i>	2006 – 2008
<i>Supervisor, Research Center (MIU)</i>	2005 – 2006

**CERTIFICATES**

TBL Practitioner Certificate, TBL Collaborative	Mar 2021
Fundamentals of TBL, TBL Collaborative	Feb 2019
Science Teaching Effectiveness Program for Upcoming Professors, UCSF	April 2016
Research Administration Training Series, U of U	May 2013
The Pre-Award Certificate proposal development and funding search process.	
The Post-Award Certificate accounting and project management aspects.	
The Research Investigator Certificate research integrity in the context of scientific management.	
The Responsible Conduct of Research Certificate ethical issues involved in research.	

**AWARDS AND HONORS**

Teacher of The Year Award	2019
Dean's Award for Excellence in Graduate Studies (VCU)	2013
Graduate School Dissertation Award (VCU)	2012
Certificate of Excellence for Outstanding Performance (MIU)	2007

**PROFESSIONAL AFFILIATIONS**

American Chemical Society (ACS)	2011 – Present
National Center for Faculty Development and Diversity	2013 – Present
American Association of Colleges of Pharmacy (AACP)	Lifetime member
American Association for University Women (AAUW)	2018 – Present
American Association for Cancer Research (AACR)	2019 – Present
American Society of Microbiology (ASM)	2019 – Present