Ammar Jastaniah, Ph.D.

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EDUCATION

August 2014- **December 2019**	*Doctor of Philosophy in Medicinal Chemistry* **University of Illinois at Chicago**

- **Thesis title:** "Cysteine Protease Inhibitors for the Treatment of Neurodegenerative Diseases and Osteoporosis."

Fall 2008 **-Fall 2010**	*Master of Arts in Biochemistry* **City College of New York (CUNY)**, New York, New York

Summer 2001- **Summer 2006**	*Bachelor of Science in Electrical Engineering, Biomedical Specialization* Pre-Medicine and minors in Chemistry and Math **Southern Methodist University**, Dallas, Texas

RESEARCH AND TEACHING EXPERIENCE

Alfaisal University   Riyadh, Saudi Arabia
Senior Lecturer in Medicinal Chemistry   01/2022 to Present

Medicinal chemistry researcher and an instructor for the organic chemistry course and lab. Additionally, I am the head of the college mentorship program.

Postdoctoral Research Associate, *University of Illinois at Chicago*
Supervisor: ***Karol Bruzik,*** *Professor*   03/2020 to 03/2021
Pharmaceutical Sciences, College of Pharmacy

To elucidate the molecular pharmacology of GABA(A) receptors, we re-synthesized and optimized the synthesis of our recently published Propofol photoprobe. Furthermore, in collaboration with Massachusetts General Hospital and informed by computational modeling and biological data, we devised novel anesthetic derivatives as null allosteric ligands.

Research Assistant, *University of Illinois at Chicago*
Faculty Advisor: ***Gregory R.J. Thatcher,*** *Professor*   05/2015 to 12/2019
Pharmaceutical Sciences, College of Pharmacy

Primary Project:

To reverse cognitive deficits resulting from neurodegenerative diseases, we designed a peptidomimetic inhibitor series that were potent and selective for calpain-1. For some of the novel compounds, their synthesis required up to 12 steps. All final compounds were characterized using ^{1}HNMR, ^{13}CNMR, and HRMS, and their purities were determined via QNMR. We employed computational chemistry and, in particular, MOE (Molecular Operating Environment) for their design. The compounds' neuroprotective properties in both *in vitro* and *in vivo* were the subject of two publications.

Secondary Projects:

1) As a complementary approach to treating neuronal degeneration (i.e. Alzheimer's disease), we synthesized α-ketoamide series based on an HTS lead ABCA1 activator.

2) Another novel peptidomimetic inhibitor series were synthesized that potently and selectively inhibited cathepsin K, a strategy used to treat osteoporosis.

3) Developed a new, different synthesis scheme for the AZ1729 compound, an allosteric activator of the GPCR free fatty acid 2 receptor.

Research Assistant, *University of Illinois at Chicago*
Terry Moore, *Associate Professor*   01/2015 to 05/2015
Pharmaceutical Sciences, College of Pharmacy

Synthesized a novel non-electrophilic modulator to disrupt protein-protein interactions between Nrf2 and the KEAP1 domain.

Research Assistant, *University of Illinois at Chicago*
Pavel Petukhov, *Professor*   08/2014 to 12/2014
Pharmaceutical Sciences, College of Pharmacy

Visualized photo labeled class I HDACs, particularly the HDAC8 isoform, through a series of optimized Western Blot experiments.

Lab Volunteer, *University of California San Diego*
Simpson Joseph, *Professor*   08/2011 to 06/2012
Department of Chemistry and Biochemistry

Investigated translocation and termination mechanism of ribosomes and associated proteins using the *E. coli* model. For site-directed mutagenesis of release factor 2 (RF2), the computer modeling software VMD was utilized to target non-conserved residues.

Masters Project, *City College of New York (CUNY)*
Joshua Wallman, *Professor*   02/2010 to 03/2011
Department of Biology

Assessed the expression levels of the FGF receptors for each of the different chick eye tissues, which were subjected to various types of lens treatment.

Various Companies   06/2011 to 02/2020
                                                                (**Full-time**, 2011-2014)

Personal tutor as an independent contractor for three different tutoring companies, teaching organic chemistry, general and AP chemistry, biochemistry, physics, math (from basic algebra to advanced calculus), IB Math, ACT and SAT prep.

AWARD

King Abdullah Science Scholarship   2014-2019

PUBLICATIONS

Jastaniah, A. et al. "Synthesis of α-Ketoamide-Based Stereoselective Calpain-1 Inhibitors as Neuroprotective Agents". *ChemMedChem*, **2020**, *15*, 2280-2285.

Knopp, R, Jastaniah, A. et al. "Extending the Calpain−Cathepsin Hypothesis to the Neurovasculature: Protection of Brain Endothelial Cells and Mice from Neurotrauma." *ACS Pharmacology & Translational Science*, **2021**, 4, 1, 372-385.

PRESENTATIONS

Oral

"Design and Synthesis of Peptidomimetics with Attenuated Reactivity for the Treatment of Neurodegenerative Diseases." **ACS Great Lakes Regional Meeting**, Lisle, IL. May 1, 2019.

Posters

Jastaniah, A., Knopp, R., Gaisina, I., Thatcher, G. "Design and Synthesis of Peptidomimetics with Attenuated Reactivity for the Treatment of Neurodegenerative Diseases." **ACS National Meeting**, Orlando, FL. March 30-April 4, 2019.

Jastaniah, A., Knopp, R., Gaisina, I., Thatcher, G. "Design and Synthesis of Peptidomimetics with Attenuated Reactivity for the Treatment of Neurodegenerative Diseases." **MIKI 2018**, Chicago, IL. April 6-April 8, 2018. **MIKI 2017**, Minneapolis, MN. April 7-April 9, 2017.

Jastaniah, A., Gaisina, I., Pierce, E., Ben Aissa, M., Thatcher, G. "Design and Synthesis of Electrophilic Peptidomimetics with Attenuated Reactivity for the Treatment of CNS Disorders". **MIKI 2016**, Iowa City, IA. April 8-April 10, 2016.

LANGUAGES

English: Fully fluent
Arabic: Fully fluent
Turkish: Advanced intermediate fluency

REFERENCES

Dr. Manal M. Alem
Acting Dean & Assistant Professor of Clinical Pharmacology
Alfaisal University
Email: malem@alfaisal.edu
Phone: 0558221311

Dr. Gregory R. Thatcher   Dr. Irina Gaisina
Professor, Pharmacology and Toxicology   Research Assistant Professor
University of Arizona   Pharmaceutical Sciences
Email: grjthatcher@arizona.edu   University of Illinois at Chicago
Phone: (520) 626-1427   Email: igaysina@uic.edu