

# ARCHIBALD T. EAGLE

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## EDUCATION

Big University

**Biochemistry Ph.D. Candidate**

2021-Present

Minor: Supramolecular Complexes

Research Advisor: Pro. Fessor, Ph.D.

Relevant coursework: Analysis of Biochemical Literature, Biomolecular Analysis and Interactions, Biological Electron Microscopy, Biological Regulation, Digital Imaging Light Microscopy, Enzyme Mechanisms, Fundamentals of Biochemical Catalysis, Grant Writing, Intro to Chemical Biology I and II, Intro to Quantitative Biology and Measurement, Macromolecular Structure and Function, Membranes and Membrane Proteins, Structural Biology of Supramolecular Complexes

University of Southern Indiana

**Bachelor of Science, Chemistry, ACS Approved**

2017-2021

Minor: Biophysics

Research Advisor: U.R. Advisor, Ph.D.

Relevant coursework: Biochemistry I, Calculus I and II, Cell Biology, Chemistry Seminar I and II, General Chemistry I and II, Inorganic Chemistry, Instrumental Analysis, Organic Chemistry I and II, Principles of Biology, Physics I and II, Modern Physics, Quantitative Analysis

## PUBLICATIONS

- J. M. Pretendas, Md. J Nnoone, M. S. Notreal, K. Spretend, **Archibald T. Eagle**, L. M. Klassmate, AB Ceema, Pro Fessor. Structural Characterization of 5-Substituted Pyrrolo[3,2-d]pyrimidine Antifolate Inhibitors in Complex with Human Serine Hydroxymethyl Transferase 2 *Biochemistry* **2024** 63 (4), 545-500 DOI: 10.1021/acs.biochem.3c000000
- J Nnoone, J. M. Pretendas, Teache Methodothis, Jennifer D. Friend, **Archibald T. Eagle**, Pro Fessor, and AB Ceema. Structure-Based Design of Transport-Specific Multitargeted One-Carbon Metabolism Inhibitors in Cytosol and Mitochondria. *Journal of Medicinal Chemistry* **2023** 66 (16), 11294-11300 DOI: 10.1021/acs.jmedchem.3c000000

## PRESENTATIONS AND POSTERS

- 13<sup>th</sup> Annual Wata Symposium in Chemical Biology Fall 2024
- Big University Biochemistry Graduate Retreat Fall 2024
- 8<sup>th</sup> International Symposium on Folate Biology and Therapeutics Fall 2023
- Big University Biochemistry GRC Poster Colloquium Summer 2023
- American Chemical Society Spring Conference Poster Presentation Spring 2023
- University of Southern Indiana Student Collaboration Poster Spring 2020

## TECHNICAL SKILLS

### Big University

- Protein purification via affinity, ion-exchange, and size exclusion chromatography (GE ÄKTA)
- Enzyme assay development and optimization (fluorescence and absorbance on BioTek Neo2 plate reader)

- X-ray crystallography techniques (setting up crystal trays, looping and freezing crystals, data collection, and data processing)
- Cloning of recombinant genes for protein expression in *E. coli* (isothermal assembly, ligation, independent cloning, QuickChange mutation insertion, NEBuilder DNA assembly, and traditional cloning techniques)
- Cell culture techniques (Chinese hamster ovarian (CHO) cells and human pancreatic cancer (MIA-Paca-2) cells) and protein expression (*E. coli* and *S. cerevisiae*)
- Traditional cloning of recombinant genes for protein expression in yeast (*Saccharomyces cerevisiae*)
- Dynamic light scattering (DLS) for determining sample composition

#### University of Southern Indiana

- Basic extraction of active compounds using reflux techniques
- Basic thin-layer chromatography techniques to determine presence of aromatic centers
- Basic infrared spectroscopy and nuclear magnetic resonance spectroscopy techniques

#### COMPUTER PROGRAMS

- Chimera and ChimeraX – structural analysis
- Phenix, Coot, and ccp4 – structural analysis, refinement, and molecular replacement
- ThinLinc and Basic Linux commands – structural determination including processing of data sets
- No Machine – collection of data sets from AP Lightning Site computers in Berkley, California
- Snapgene – examining sequences and generating primers
- Prism – processing of data from kinetic assays
- ChemDraw – drawing of basic structures
- Adobe Illustrator
- Microsoft Programs – Word, Excel, PowerPoint, Outlook, Teams, OneNote

#### AWARDS AND HONORS

- |   |            |
|---|------------|
| • Peg Travel Award  | 2022, 2023 |
| • Brie Teaching Award   | 2022       |
| • University of Southern Indiana Student Collaboration Award      | 2020       |
| • AB Pharma Science & Technology Award                            | 2018-2020  |
| • Judy Benz Hight Memorial Scholar for Organic Chemistry students | 2019-2020  |
| • University of Southern Indiana Dean's Scholar                   | 2017-2020  |
| • University of Southern Indiana Rice Merit Scholar               | 2017-2020  |
| • B and Linda Bren Memorial Teaching Scholar                      | 2017       |

#### TEACHING EXPERIENCE

##### *Big University*

##### **Human Biochemistry (C123) – Assistant Instructor**

Fall 2024

Led two discussion sections and assisted students by teaching concepts needed for in-class discussion worksheets. Assisted students with questions and concepts of basic human biochemistry. Graded problem sets, quizzes, and exams.

##### **Biochemistry Research Lab (B123) - Assistant Instructor**

Spring 2024

Assisted Biochemistry students with questions and set up in lab, enforced safety requirements, graded/recorded lab reports and materials, explained lab and lecture topics and concepts. Focused on deepening students understanding of biochemistry lab techniques for research purposes.

Fall 2023

**Honors Principles of Chemistry and Biochemistry (A123) – Assistant Instructor**

Taught discussion sections and assisted students with homework questions, graded problem sets and exams, explained basic biochemistry topics and concepts.

**Biochemistry Research Lab (B456) - Assistant Instructor**

Spring 2023

Assisted Biochemistry students with questions and set up in lab, enforced safety requirements, graded/recorded lab reports and materials, explained lab and lecture topics and concepts. Focused on deepening students understanding of biochemistry lab techniques for research purposes.

**Principles of Chemistry and Biochemistry Lab (C611) - Assistant Instructor**

Fall 2022

Assisted students with questions and set up in lab, enforced safety requirements, graded/recorded lab reports and materials, explained lab and lecture topics and concepts.

**Bris Teaching Scholar – Biochemistry Pod Mentor**

Summer 2022

Assisted students with questions and set up in lab, enforced safety requirements, demonstrated lab techniques and processes, and explained lab topics and concepts.

**Biology Lab (A223) - Assistant Instructor**

Spring 2022

Graded lab assignments and assisted students with questions. Held virtual office hours.

*University of Southern Indiana*

**Organic Chemistry I Lab - Teaching Assistant**

Fall 2020

Assisted students with questions and set up in lab, enforced safety requirements, graded/recorded lab reports and materials.

## WORK EXPERIENCE

**Quality Control Analyst, AB Pharma**

May 2021-July 2021

Scanned and organized procedures and standard operating protocols (SOPs)

Assisted in lean processes and 5S work in the lab

**Quality Control Intern, AB Pharma**

May 2020 - December 2020

Communicated with and obtained information on Handheld Raman processes from three other AB Pharma sites

Created task cards and a points system and updated laboratory Pull System for Raw Materials group including updating work packages

Prepared documents and assisted in preparing for implementation of new laboratory system.

**Quality Control Intern, IN Research Co.**

May 2019 - December 2019

Lead on Business Case for Global Vision Print Inspection System for local Site

Assisted in Autoclave Qualifications in Micro Lab including making media and sample prep

Drove lean processes and 5S work in the lab including labeling, organizing, and creating End-of-Day Standards

Created brochures using insight from other interns to advance the recruiting process at Career Fairs

**Histology Intern, Research Pretend Partners**

August 2018 – April 2019

Prep Work – Made slides, cassettes, necropsy preparation, labeled items

Prosecting – Dissected primarily rodents, some non-rodents

Bone Marrow slide making– prepared and stained slides for shipping

Transferred lab work and materials in a timely manner

Assisted with inventory and archival of study materials

#### AFFILIATIONS

- Jim Brown Summer Enrichment Molecular Biology Lab Volunteer 2022
- Biochemistry Graduate Representative Committee Member 2021-2023
- University of Southern Indiana Honors Program 2017-2021
- Gama Phi Neu Sorority 2017-2021
- Recording Secretary 2019-2020
- Assistant Education Vice President 2018-2019
- Assistance Activities Chairwoman 2017-2018
- Order of Omega 2020-2021
- American Chemical Society, USI Student Chapter 2017-2021
- Secretary 2017-2018
- University of Southern Indiana Emerging Leaders 2017-2018
- University of Southern Indiana Orientation Leader 2017-2018