1501 Commonwealth Ave 305 Mobile: (931) 639-2494

Brighton, Massachusetts, 02135 caojingzhe@gmail.com

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| **Summary of Qualifications** |
| * Extensive research experience in organic synthesis lab
* Extensive research experience in biochemistry and bioinformatics lab
* Wide range of computer hardware and software skills
* Variety of experience using chemistry instruments
* Undergraduate Research Opportunity Program Stipend Award and Symposium Presentation
* National Registered Emergency Medical Technician: basic (NREMT)
* Bilingual (Chinese and English)
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 **Education**

**Princeton University, Princeton NJ Anticipated Graduation: May 2023**

* Ph.D in Chemistry, Research Mentor: Todd Hyster

**Princeton University, Princeton NJ Graduated: May 2020**

* Master of science in Chemistry, Research Mentor: Todd Hyster

**Boston University, Boston MA Graduated: May 2018**

* B.A. cum laude with honors in Chemistry: Biochemistry
* Minor: Computer Science
* Undergraduate Research Opportunity Program (UROP) Stipend Award
* Boston University Emergence Medical Technician (EMT) Training Program
* Member, Delta Phi Epsilon (ΔΦΕ) International Relationship and Business Fraternity
* Dean’s list 2016

**The Webb School, Bell Buckle TN Graduated: May 2014**

* Magna cum laude
* AP scholar

**Scientific Research Experiences and Publication:**

**Todd Hyster Organic chemistry & biocatalysis Lab (2018 – ):**

Pyridoxal-Catalyzed Racemization ofα‑Aminoketones Enables the Stereodivergent Synthesis of 1,2-Amino Alcohols Using Ketoreductases. *ACS Catal.* 2020**, 10,** 6171−6175.

**James Panek’s Organic Synthesis Lab (2017 – 2018):**

* Focusing on two projects in parallel with a 6th year graduate student, Bin Cai: Convergent Synthesis of Novel Muramyl Dipeptide (MDP) Analogues and Chiral Allenylsilane with Titanium Alkoxide-Mediated Reductive Coupling Bond Construction
* The two projects contribute to deeply understanding the inhibition of biquitin-editing enzymeA20 and activator protein 1 (the final MDP analogues will be utilized by professor Salomon Amar from New York Medical College to further investigate the ability of high doses of MDP’s to inhibit porphyromonas gingivalis-induced pro-inflammatory effects)

Project related papers: *Convergent Synthesis of Novel Muramyl Dipeptide Analogues: Inhibition of Porphyromonas gingivalis-Induced Pro-inflammatory Effects by High Doses of Muramyl Dipeptide* Bin Cai, James S. Panek, and Salomon Amar Journal of Medicinal Chemistry 2016 59 (14), 6878-6890

**Tom Tullius Research’s Group (2015 - 2017):**

* Hydroxyl Radical Footprinting (widely used for the structural study of DNA, DNA-protein complexes, and RNA). Investigated the connection between structural properties of DNA and genomics, including evolutionary selection for DNA structure in the human genome.

**Siobhan M. Mattison’s research group (2014 - 2015):**

* Adopted daughters and adopted daughters-in-law in Taiwan: a mortality analysis. R. Soc. Open sci. **5**,171745
* Received Stipend Award (submitted research project comparing characteristics among natal and adoptive household in the context of minor marriage in historical Taiwan via computational analysis, *Biology kills: adopted daughters with the lowest potential to perpetuate the biological lineage have the lowest mortality in historical Taiwan.*

**Skills and Certifications:**

* **Chemistry Instruments**: Nuclear Magnetic Resonance Spectroscopy (NMR), Gas Chromatography/Mass Spectrometry (GC/MS), High Performance Liquid Chromatography (HPLC), Matrix Assisted Laser Desorption Ionization-Time of Flight Mass Spectrometry (MALDI-TOF), Fourier-Transform Infrared Spectroscopy (FTIR), Beckman Coulter Genetic Analyzer (CEQ 8000), UV-Vis Molecular Absorption Spectroscopy (UV/vis), Atomic Absorption Spectroscopy (AAS), Atomic Emission Spectroscopy (AES), Fluorescence Spectroscopy, Raman Spectroscopy, Polarimetry Spectroscopy, Circular Dichroism (CD) Spectroscopy, and Bioanalyzer
* **Computer**: Computer Hardware Assemble, Microsoft Office, Python, Java, SQL, R Studio, Matlab, PyMol, Cadnano, Virtual Machine, Photoshop, ChemDraw, and Mestronova
* **Certifications:Certification of Completion (**Boston University Emergency Response Education), **National Registered Emergency Technician (EMT) Basic**, **Professional Association of Diving Instructor (PADI) Advanced Certified, Cardiopulmonary Resuscitation (CPR)**

**Clinical/Community Service Experiences:**

* **Boston Children’s Hospital** *(November 2014 - 2016)* Volunteer: Hospital Ambassador, Patient Discharge Service, Inpatient units
* **Brigham and Women hospital** *(September 2015 - 2016)* Volunteer: Physician Shadowing with Medical Career Exploration Program, Central Transport Ambassador, Blood Transporter
* **Advance Trauma Life Support (ATLS)** (April 3rd) Volunteer: Brigham and Women’s Hospital ATLS course
* **Gordon Brothers Golf Tournament Fundraiser benefiting Boston Children’s Hospital** *(Summer 2015)* Volunteer
* **Monroe Carell Jr Children's Hospital at Vanderbilt** *(Summer 2012)*Volunteer
* **Escare Paramedic Ambulance Observatory** *(Summer 2015)*Internship
* **Boston Medical Center Emergency Room (ER) Trauma Observatory** *(Summer 2015)* Internship

**Other Professional Experiences/Activities:**

* **Treasurer of Student Government and Class Council Representative**
* **MTAA Football Championship (Tennessee)** (*Fall* *2013)* Won the State Championship
* **TSLA Division II Lacrosse Championship (Tennessee) (***Spring 2012)*
* **Citibank** *(Summer 2013)* Internship: Financial Data Analysis
* **Boston University Outing Club**: Member (*2014*)
* **Boston University Financial club**: Member *(2014)*
* **Boston University Beekeeping Club:** Vice President (2016- Present)