

Christopher Kong

Motivated and driven candidate with a multidisciplinary background and practical experience as a researcher and analyst. More than 2 years of hands-on laboratory experience with emphasis on protein purification, peptide synthesis, and molecular biology. Industrial experience at Pfizer Automation Engineering department. Knowledgeable in maintaining and analyzing large database; experienced in project management and presentations.

Skills

Molecular Biology and Protein Purification

- ELISA (Enzyme-Linked Immunosorbent Assay)
- HPLC (High-performance liquid chromatography)
- Solid-Phase Peptide Synthesis
- PCR (Polymerase Chain Reaction)
- Molecular Cloning
- General Aseptic Techniques

Analytical Techniques

- LC-MS (Liquid Chromatography – Mass Spectroscopy)
- ¹H NMR (Nuclear Magnetic Resonance Spectroscopy)
- FRET (Fluorescence Resonance Energy Transfer)
- UV-Vis Spectroscopy
- Fluorescence Spectroscopy
- Gel Electrophoresis (SDS-Page Gel)

Computer and Programming Skills

- Automation Software (AVEVA PI & FactoryTalk)
- PLC (Programmable Logic Controller)
- Fusion 360 Autodesk (3D printing applications)
- Microsoft Office (Word, PowerPoint, Excel)
- SQL (Administration/Querying)
- Python (biopython, pandas, numpy)
- R (tidyverse, ggplot2)
- Web Development (HTML/CSS/JS)

Industry Experience

Pfizer | Automation System Analyst

Apr. 2023 – Current

- Integrated monitoring of approximately 90% of current site equipment utilizing programmable logic controllers (PLCs) through AVEVA PI software suite
- Maintained and analyzed site-wide data using MS SQL and SSRS for site alarming and reporting as a database administrator
- Adhered to FDA cGMP regulations through proper documentation such as standard operating procedures (SOP) and equipment design specifications
- Led multiple continuous improvement projects in conjunction with contractors and validation/quality teams

Research Experience

Cationic Caged Peptide Design Project | DeGrado Lab (UCSF)

Aug. 2022 – Jan. 2023

- Designed *de novo* proteins for caged cationic conformations as potential therapeutic agents using *in silico* experimentation for simulating protein folding
- Determined optimal sequence residues through structure prediction and machine learning models: ColabFold and Rosetta Commons
- Wrote multiple Python scripts to automate design process using packages like biopython and numpy ([Github repository](#)) to score overall peptide stability

Drug Delivery Project | Lawrence Lab (UNC)

May 2021 – Jul. 2022

- Tested TPA concentration of internally loaded red blood cells using ELISA assays
- Synthesized various melittin inhibitor analogues and therapeutic oligopeptides
- Quantified peptide fragments using LC-MS and UV-Vis/Fluorescence spectroscopy

Virtual Reality Safety Project | Lawrence Lab (UNC)

Aug. 2020 – Jul. 2022

- Helped build and test virtual environments to teach laboratory safety using the Unity Web Engine
- Collaborated with Ghostpunch Games, LLC and UNC Eshelman School of Pharmacy
- Surveyed participants to determine an approximate 85% agreement of engagement and memorable experience

DNA Mismatch Repair Project | UNC Department of Chemistry

Aug. 2020 – Jul. 2022

- Observed *Thermus aquaticus* (*Taq*) and *Escheria coli* (*E. coli*) UvrD helicase protein to characterize activity
- Utilized molecular cloning and protein purification/quantification methodologies to isolate UvrD proteins
- Performed FRET and ATPase assays to determine overall kinetics using Michaelis-Menten plots

Education

University of North Carolina at Chapel Hill (UNC)

Aug. 2018 – May 2022

B.S. Biochemistry & B.A. Computer Science, Neuroscience Minor

GPA: 3.829

Publications

Kong CI., Welfare JG., Shenouda H., Sanchez-Felix OR., Floyd Jr. JB., Hubal RC., Lawrence DS. (2022). Virtually Bridging the Safety Gap between the Lecture Hall and the Research Laboratory. *J. Chem. Educ.* 99 (5), 1982-1989

Conferences

- UNC Celebration of Undergraduate Research Symposium (2022) – Group Poster Presentation
 - “Characterization of *Taq* UvrD Helicase Activity”
- University of Buffalo Undergraduate Research Conference (2021) – Poster Presentation
 - “Stability Assessment of Loading Tissue Plasminogen Activator into Human Red Blood Cells for Protein Therapeutics”
- Summer Undergraduate Pipeline Research Conference (2021) – Poster Presentation
 - “Stability Assessment of Loading Tissue Plasminogen Activator into Human Red Blood Cells for Protein Therapeutics”

Honors

- Phi Beta Kappa (2021)
- Jason D. Altom Memorial Award (2021)
- UNC Chemistry Department “Say Yes” Fund Award (2021)
- Ronald E. McNair Scholar (2021)