

# Christopher Kong

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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 both the large and small scale in the realm of the pharmaceutical industry. Knowledgeable in maintaining and analyzing large database and datasets; experienced in project management and presentations.

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## Skills

### Molecular Biology and Protein Purification

- ELISA (Enzyme-Linked Immunosorbent Assay)
- HPLC (High-performance liquid chromatography)
- Solid-Phase Peptide Synthesis
- PCR (Polymerase Chain Reaction)
- RNA/DNA Synthesis & Extraction
- General Aseptic Techniques

### Analytical Techniques

- LC-MS (Liquid Chromatography – Mass Spectroscopy)
- <sup>1</sup>H 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)
- Fusion360 Autodesk (3D printing applications)
- Microsoft Office (Word, PowerPoint, Excel)
- SQL (Administration/Querying)
- Python (scikit, pandas, numpy)
- R (tidyverse, ggplot2)
- Web Development (HTML/CSS/JS)

## Industry Experience

### Base4 | Laboratory Technician

Apr. 2024 – Current

- Synthesizing RNA using both in-vitro and solid-phase methodologies and purification through techniques such as gel extraction
- Designed and ran a diverse set of binding assays specific to RNA to help with drug discovery efforts
- Utilized Python to write numerous scripts for automated data analysis and for high-throughput analysis using Opentrons lab automation system
- Coordinating multiple responsibilities from instrument calibration to inventory management to help aid the fast-paced startup environment

### Pfizer | Automation System Analyst

Apr. 2023 – Apr. 2024

- 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) or 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*) Uvr 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)