

Seoyeon (Reina) Hong

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EDUCATION

UNIVERSITY OF CALIFORNIA, DAVIS

Bachelor of Science in ACS Chemistry; Minor in Political Science

Davis, CA

Expected Jun 2028

PROFESSIONAL EXPERIENCE

UC DAVIS, FRANZ LAB

Undergraduate Researcher

Davis, CA

Sep 2025 – Present

- Examined new synthesis routes for silyl C-Laurdan analogs using NMR, revealing how the probe partitions between fluid and rigid lipid nanoparticle states
- Optimized the reaction pathway to produce additional C-Laurdan probe analogs

ASDRP, NJOO LAB

Researcher

Fremont, CA

Jun 2023 – Jun 2024

- Investigated the prodrugging process of a novel scaffold of steroids; characterized synthesized compounds through NMR and HPLC and presented summary of findings at SCCUR Fall 2023 and ACS Spring 2024
- Optimized the synthesis pathway for the NSAID compounds celecoxib and mavacoxib, tracking production rates with ¹⁹F NMR, which shortened synthesis time and improved overall yield
- Characterized over ten novel andrographolide analogs featuring silyl-group additions and benzaldehyde alternatives, enabling identification of promising candidates for further biological testing

PUBLICATIONS

Synthesis, anticancer properties, and biological profiling of synthetic glycan analogs of proscillaridin A

Oct 2025

Discover Pharmaceutical Sciences

<https://doi.org/10.1007/s44395-025-00025-1>

Synthesis, antiproliferative activity, and biological profiling of C-19 trityl and silyl ether andrographolide analogs in colon cancer and breast cancer cells

Jun 2025

Bioorganic & Medicinal Chemistry Letters

<https://doi.org/10.1016/j.bmcl.2025.130163>

Benchmark 19F Nuclear Magnetic Resonance (NMR) Spectroscopy-Optimized Knorr Pyrazole Synthesis of Celecoxib and Mavacoxib, 3-(Trifluoromethyl) Pyrazolyl Benzenesulfonamides, Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

Spectroscopy Journal

Nov 2024

<https://doi.org/10.3390/spectroscj2040014>

PROJECTS

AI-POWERED DOCUMENT RETRIEVAL & Q&A SYSTEM

AI Engineering Extern

Extern, Pfizer

Jun 2026 - Sep 2026

- Built AI pipelines using Python to process pharmaceutical documents using OCR (Tesseract, PaddleOCR) and RAG for data extraction, processing, and classification
- Developed a RAG-based document retrieval system with LlamaIndex, optimized with chunk tuning, embedding, and open-source LLMs (Gemini, Groq, Mistral, Phi-2, TinyLlama, Qwen)
- Conducted end-to-end evaluation of the document intelligence system to benchmark OCR accuracy, RAG retrieval quality, and routing performance

ADDITIONAL EXPERIENCE

CODOLOGY

Head of Marketing Strategy, Head of Research, Project Manager

Remote

Oct 2022 – Jul 2024

- Directed a 10-member cross functional team to produce and publish weekly blog content, driving readership growth of company website to 1,500+ monthly views
- Mentored a 5-member research team, guiding project design, data analysis, and publication strategy resulting in 3 publications
- Tailored a new design for posting on company social media, overseeing the social media account in order to raise public engagement to > 1,000+ daily page visits

ADDITIONAL

Technical Skills: Organic Synthesis, TLC, LC/GC-MS, NMR, FT-IR, Microsoft Excel, Data Analysis, Python, JSON, PyMuPDF

Professional Skills: Research, Customer Service, Strategic Marketing, Digital Campaign Optimization, Project Management