

# GEOFFREY WEN-REI LANG

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## POSITIONS AND EMPLOYMENT

Pratt Lab Group (USC), Los Angeles, CA

**August 2021–present**

### **Graduate Research Assistant**

- Completed coursework in x-ray crystallography, chemical biology, molecular imaging, advanced nuclear magnetic resonance techniques, and medicinal chemistry
- Investigating how the O-GlcNAc modification of proteins affect the disease progression and chemoresistance in cancer

Centrillion Technologies, Palo Alto, CA

**August 2020–August 2021**

### **Research Associate**

- Developed and validated analytical HPLC protocols to evaluate and validate efficiency and yield of solid-state oligonucleotide synthesis
- Developed synthetic methods for coating silicon substrates with organic polymers
- Synthesized organic silanes for use in oligonucleotide synthesis
- Performed synthesis of oligonucleotides to evaluate efficiency and performance of aforementioned materials

England Lab Group (UCSF), San Francisco, CA

**July 2018–April 2020**

### **Junior Specialist**

- Developed and tested pharmaceutical drug candidates for the treatment of Parkinson's Disease
- Developed and validated high throughput screening protocols for measuring binding between proteins and ligands (microscale thermophoresis & surface plasmon resonance)
- Expressed and purified recombinant protein using ion-exchange and affinity chromatography
- Synthesized and purified a library of compounds as potential pharmaceutical drug candidates
- Performed characterization by NMR and mass spec analysis of compounds
- Presented my results during biweekly lab meetings

Pratt Lab Group (USC), Los Angeles, California

**October 2015–May 2018**

### **Undergraduate Research Assistant**

- Studied the role of post-translation glycosylation in Parkinson's Disease and Alzheimer's Disease
- Designed and validated syntheses for glycosylated amino acids and proteins
- Used native chemical ligation to synthesize proteins with site-specific glycosylation
- Performed western blot assays to measure presence of glycosylated protein levels in cells
- Developed tissue culture protocol for studying glycosylation under hypoxic conditions

Piro Lab Group (Franklin and Marshall College), Lancaster, PA

**May–July 2015**

### **Undergraduate Research Assistant**

- Performed DNA/RNA extraction for sequencing
- Used Nanodrop to quantify nucleic acid and protein concentration
- Performed recombinant protein expression and purification

## EDUCATION

**University of Southern California**, Los Angeles, CA

**August 2015–May 2018**

Bachelor of Science in Chemistry and a minor in Spanish Language and Culture Graduated Cum Laude with Departmental Honors

Research Advisor: Dr. Matthew R. Pratt

**University of Deusto**, Bilbao, Spain

**January 2017–May 2017**

Spanish Language & Culture Program

**Franklin and Marshall College, Lancaster, PA**  
Research Advisor: Dr. Christine P. Piro

**August 2014–June 2015**

### **AWARDS AND HONORS**

USC Renaissance Scholar Graduation Honor	May 2018
USC Discovery Scholar Graduation Honor	May 2018
Provost Fellowship Award	Summer 2016, Fall 2017, Spring 2018
Reba L., Harry W., and George H. Stahl Memorial Scholarship	2017
Barry Goldwater Scholarship Foundation Nominee from USC	2017
Del Amo Fellowship	2017
Most Outstanding Undergraduate in Organic Chemistry Award	2016
University of Southern California Dean's List	January 2016–May 2018
Franklin and Marshall College Dean's List	August 2014–May 2015

### **PUBLICATIONS (PEER-REVIEWED)**

De Leon, C. A.; **Lang, G.**; Saavedra, M.; Pratt, M. R.; Simple and Efficient Preparation of O- and S-GlcNAcylated Amino Acids through InBr<sub>3</sub>-Catalyzed Synthesis of β-N-Acetylglycosides from Commercially Available Reagents. *Org. Lett.* **2018**. 10, 1021. (PMID: 30088936; doi: 10.1021/acs.orglett.8b02182)

Kholodar, S. A., **Lang, G.**, Cortopassi, W. A., Yoshie Iizuka, Y., Harman S. Brah, H. S., Jacobson, M. P., England, P. M.; Analogs of the Dopamine Metabolite 5,6-Dihydroxyindole Bind Directly to and Activate the Nuclear Receptor Nurr1 (NR4A2). *ACS Chem. Biol.* **2021**. 16, 7, 1159–1163. (PMID: 34165961; doi: 10.1021/acschembio.1c00326)

### **PRESENTATIONS**

American Chemical Society National Meeting, New Orleans, LA; (2018), poster presentation  
46th John Stauffer Distinguished Lecture Student Research Poster Extravaganza, Los Angeles, CA; May 2018, poster presentation  
USC Undergraduate Symposium, Los Angeles, CA; May 2018, poster presentation

### **TEACHING**

<b>Graduate Teaching Assistant in Organic Chemistry</b> , University of Southern California, Los Angeles, CA	<b>August 2021–May 2022</b>
<b>Organic Chemistry Supplemental Instructor</b> , University of Southern California, Los Angeles, CA	<b>August 2017–May 2018</b>
<b>English &amp; Spanish Tutor</b> , Capital Languages, Bilbao, Spain	<b>January 2017–May 2017</b>

### **COMMUNITY SERVICE**

<b>EMT-B</b> , Emergency Medical Services of Southern of California University of Southern California, Los Angeles, CA	<b>August 2016–March 2018</b>
<b>Tutor</b> , Teach for Los Angeles, University of Southern California, Los Angeles, CA	<b>August 2016–April 2018</b>
<b>Translator</b> , Joint Educational Project, University of Southern California, Los Angeles, CA	<b>October–December 2015, June–August 2016</b>
<b>Head Coach</b> , Trojan Youth Soccer League, University of Southern California, Los Angeles, CA	<b>October 2015–April 2016</b>

### **EXTRA-CURRICULAR ACTIVITIES**

<b>Vice President/Founder</b> , Trojan Chemistry Club, University of Southern California	<b>September 2017–May 2018</b>
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**Men's Varsity Rowing Team**, University of Southern California, **August 2015–March 2016**  
(US Rowing, Division I)

**Men's Varsity Rowing Team**, Franklin and Marshall College, **August 2014–June 2015**  
(US Rowing, Division III)

- Silver Medal in the 2000 meter sprint at the Mid-Atlantic Rowing Conference Championship [1]
- Silver Medal in the 2000 meter erg sprint at the 2015 Pittsburgh Indoor Sprints [SEP]

**USC Men's Ultimate Frisbee Team**, University of Southern California **August 2015–October 2017**

**FUNDING (COMPLETED)**

Provost Fellowship Award **Spring 2018**  
University of Southern California \$1,000

“Synthesis of Glycosylated Serine and Threonine using an Indium Bromide Catalyst”

The major goal of this project is to develop a new synthetic approach with mild conditions and minimal number of steps to afford O-GlcNAc serine and threonine using an Indium Bromide catalyst.

Provost Fellowship Award **Fall 2017**  
University of Southern California \$1,000

“Development of Threonine Analogs for the Study of  $\alpha$ -Synuclein in Neurodegenerative Diseases”

The major goal of this project was to develop a new synthetic approach with mild conditions and minimizes the number of steps to afford S-GlcNAc threonine.

Del Amo Fund **2017**  
University of Southern California \$1,000

Provost Fellowship Award **Summer 2016**  
University of Southern California \$3,000

“Probing PKM2 Activity using DASA-58”

The major goal of this project was to test if the inhibitor, DASA-58, induces PKM2 in several cancer types as well as determine if PKM2 activity is important for elevated O-GlcNAc levels.