

## Education

1. University of California Davis Davis, CA 2014-2020
  - PhD - Biochemistry, Molecular, Cellular, Developmental Biology 09/2020
  - Masters - Biochemistry, Molecular, Cellular, Dev Biology 2018
  - 3.73 GPA
2. San Francisco State University (SFSU) San Francisco, CA 2011-2014
  - BS Biochemistry 3.98 Major GPA 06/2014
  - BA Chemistry 3.98 Major GPA 06/2014
  - Awards:
    - i. Hood Recipient
      1. Distinction given to one student for exemplary work by the SFSU College of Science and Engineering
    - ii. Valedictorian - SFSU Department of Chemistry and Biochemistry
    - iii. Magna Cum Laude – 3.75 all college GPA
3. Solano Community College Fairfield, CA 2011
4. Chabot College Hayward, CA 2000
5. Napa Valley College Napa, CA 1996-1999

## Teaching Experience

1. **Solano Community College** (full-time) Fairfield/Vacaville/Vallejo, CA Fall 2022 - present
  - General Chemistry I (CHEM001)
    - i. Lecture/Lab In-person
  - Introductory Chemistry (CHEM160)
    - Lecture/Lab In-person
2. **Solano Community College** (part-time) Fairfield/Vacaville, CA
  - General Chemistry I (CHEM001)
    - i. Lecture/Lab In-person/online 6 sections Fall 2019 – Spr 2022
  - Cell Culture and Protein Recovery (BIOT062)
    - i. Lab In-person 1 section Sum 2021
  - Biotechnology Instrumentation: Quality Control & Genetic Engineering (BIOT063)
    - i. Lab In-person 1 section Sum 2021
3. **Diablo Valley College** (part-time) Pleasant Hill, CA
  - General Chemistry I (CHEM120)
    - i. Lecture/Lab Online 3 sections Fall 2021 – Spr 2022
4. **Napa Valley College** (part-time) Napa, CA
  - Introductory Chemistry (CHEM110)
    - i. Lecture/Lab Online 4 sections Fall 2021 – Spr 2022
5. **San Francisco State University** (part-time) San Francisco, CA
  - Genetics (BIOL355)
    - i. Lecture Online 2 sections Fall 2021 - Spr 2022

## Other Teaching Experience

1. Online teaching courses
  - Introduction to Online Learning – 40 hour course 2020
  - Creating Accessible Content – 40 hour course 2020
2. Online Course Canvas Shell Approval by the Distance Ed Department SCC 2020
3. Online Teaching Approval – NVC 2021
4. Teaching assistant, UC Davis, Human Genetics and Genomics, MCB162 2018
5. Teaching workshops
  - Teaching strategies for new instructors 2016
  - Planning lessons for student success 2016
  - Establishing a positive learning environment 2016

- UC Davis TA Orientation 2015
- 6. Chemistry and Biology tutor, SFSU 2013-2014
- 7. Grader for quantitative analysis in chemistry, SFSU 2013
- 8. Chemical Water Treatment Instructor, Inserv Company, Fairfield, CA 2004-2010
  - Quarterly one hour classes for HVAC contractors and building engineers

### Research Experience

- 6. Jacqueline Barlow Lab 2015-2021
  - UC Davis, Dept of Microbiology and Molecular Genetics
  - Graduate Student Researcher
    - i. I investigate replication-transcription conflicts in mouse primary B cells using ChIP-seq, RNA-seq, and bioinformatic analysis. I have also used the CRISPR-Cas9 system to direct transcriptional effectors attached to catalytically deactivated dCas9 to modulate the transcription of specific genes in cells and investigate DNA damage using fluorescence in-situ hybridization.
- 7. Teaster Baird Lab 2011-2014
  - San Francisco State University, Department of Chemistry and Biochemistry
  - Undergraduate Student Researcher
    - i. I engineered proteases to be less susceptible to macromolecular inhibition using trypsin as a model protease. My project was the position lysine-60 and I created variants K60G, K60A, K60V, K60I, K60M, and K60R from designing mutagenic primers, expression in *Pichia pastoris*, FPLC purification, zymogen activation, and affinity chromatography. Wild-type trypsin and variants were then used in Michalis-Menten kinetic experiments and inhibition kinetic experiments.
- 8. Geeta Narlikar Lab 2013
  - University of California, San Francisco, Department of Biochemistry and Biophysics
  - UCSF Summer Research Training Program Undergraduate Student Researcher
    - i. We study how modifications to nucleosomes and nucleosomal DNA affect the transition between euchromatin and heterochromatin. My summer project was working with CMT3, a DNA methyltransferase, in the organism *Arabidopsis thaliana*, a plant with high amounts of DNA methylation in its genome. I was developing a comparatively fast method to quantify in-vitro methylation using anti-5-methylcytosine antibodies and blots to eventually replace radioactive assays.

### Publications

- **St Germain CP**, Zhao H, Sinha V, Sanz LA, Chédin F, Barlow JH. Genomic patterns of transcription-replication interactions in mouse primary B cells. *Nucleic Acids Res.* 2022 Feb 28;50(4):2051-2073. doi: 10.1093/nar/gkac035. PMID: 35100392; PMCID: PMC8887484.
- **St Germain C**, Zhao H, Barlow JH. Transcription-Replication Collisions-A Series of Unfortunate Events. *Biomolecules.* 2021 Aug 21;11(8):1249. doi: 10.3390/biom11081249. PMID: 34439915; PMCID: PMC8391903.
- Batt AR, **St Germain CP**, Gokey T, Guliaev AB, Baird T Jr. Engineering trypsin for inhibitor resistance. *Protein Sci.* 2015 Sep;24(9):1463-74. doi: 10.1002/pro.2732. Epub 2015 Jul 7. PMID: 26106067; PMCID: PMC4570540.

### Research Presentations

1. *Genome patterns of transcription-replication interactions in mouse primary B cells.* Commodore St. Germain. Vidigal Lab (NIH). Virtual Oral Presentation. August 27, 2021.
2. *Genome-Wide Mapping of Transcription-Replication Interactions in Mouse Primary B Cells.* Commodore St. Germain. Asilomar Chromatin, Chromosomes & Epigenetics Conference. Virtual Oral Presentation. December 12, 2020.
3. *Genome-Wide Mapping of Transcription-Replication Interactions in Mouse Primary B Cells.* Commodore St. Germain. UC Davis Joint Seminars in Molecular Biology. Virtual Oral Presentation. December 9 2020.
4. *Genome-Wide Mapping of Transcription-Replication Interactions in Mouse Primary B Cells.* Virtual Keystone Symposia: Genomic Stability and DNA Repair. Virtual Oral Presentation. Sep 2020

5. *Genome-Wide Mapping of Transcription-Replication Interactions in Mouse Primary B Cells*. Virtual Keystone Symposia: Genomic Stability and DNA Repair. Poster Presentation. Sep 2020
6. *Investigating Transcription-Replication Collisions in Mouse Primary B Cells*. Commodore St. Germain. UC Davis Microbiology and Molecular Genetics Department Seminar Oral Presentation. May 2019.
7. *The Problem with Basic Biology*. Commodore St. Germain. UC Davis Grad Slam Oral Presentation. February 2019.
8. *Investigating the Role of Transcription on Fragile Site Expression*. Commodore St. Germain and Jacqueline Barlow. T32 Retreat at Fallen Leaf Lake Oral Presentation. October 2017.
9. *Investigating the Role of Transcription on DNA Damage at Early Replicating Fragile Sites*. Commodore St. Germain and Jacqueline Barlow. T32 Retreat at Fallen Leaf Lake Oral Presentation. October 2016.
10. *Investigating the Role of Transcription on DNA Damage at Early Replicating Fragile Sites*. Commodore St. Germain and Jacqueline Barlow. BMCDB Retreat at UC Davis Oral Presentation. April 2016.
11. *Modulation of Transcription to Investigate Replication Induced DNA Damage at Fragile Sites*. Commodore St. Germain and Jacqueline Barlow. T32 Retreat at Fallen Leaf Lake. October 2015.
12. *Determining the role(s) of prime-side residues in macromolecular inhibition of trypsin-fold serine proteases*. Commodore St. Germain, Anna Batt, and Teaster Baird, Jr.. SFSU Student Showcase Poster Presentation. May 2014.
13. *Determining the role(s) of prime-side residues in macromolecular inhibition of trypsin-fold serine proteases*. Commodore St. Germain, Anna Batt, and Teaster Baird Jr.. Experimental Biology Poster Presentation. April 2014.
14. *Investigating the Structure-Function Roles of the Prime Side Binding Residues of Trypsin*. Commodore St. Germain and Teaster Baird Jr.. Society for the Advancement of Chicanos and Native American Scientists (SACNAS) Poster Presentation. October 2013.
15. *Enhancement of Protease Function Through Redesign*. Commodore St. Germain and Teaster Baird, Jr.. SFSU Oral Presentation for the CSU Chancellor. September 2013.
16. *Characterizing CMT3, a DNA Methyltransferase in Arabidopsis Thaliana*. Commodore St. Germain, Caitlin Stoddard, and Geeta Narlikar. UCSF Amgen Scholar Poster Presentation. July 2013.
17. *Characterizing CMT3, a DNA Methyltransferase in Arabidopsis Thaliana*. Commodore St. Germain, Caitlin Stoddard, and Geeta Narlikar. UCSF Amgen Scholar Oral Presentation. July 2013.
18. *Investigating the Structure-Function Roles of the Prime Side Binding Residues of Trypsin*. Commodore St. Germain and Teaster Baird, Jr.. SFSU Student Showcase Poster Presentation. May 2013
19. *Investigating the Structure-Function Roles of the Prime Side Binding Residues of Trypsin*. Commodore St. Germain and Teaster Baird Jr.. Experimental Biology Poster Presentation. April 2013.
20. *Profiling Trypsin Variants to Improve Protease Therapies*. Commodore St. Germain and Teaster Baird, Jr.. Annual Biomedical Research Conference for Minority Students (ABRCMS) Poster Presentation. November 2012.
21. *Profiling Trypsin Variants to Improve Protease Therapies*. Commodore St. Germain and Teaster Baird, Jr.. SFSU Summer Research Symposium Oral Presentation. August 2012.

### **Fellowships and Awards**

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|---|-----------|
| 1. Solano College Distinguished Faculty Award (Part-Time)                   | 2022      |
| 2. Solano Community College SEA Proposal Funding Award for aSTEM            | 2021      |
| 3. NIH F31 Ruth L. Kirschstein National Research Service Award 1F31CA213871 | 2017-2020 |
| 4. NIH T32 GM007377 Training Grant Trainee                                  | 2015-2017 |
| 5. NIH-Initiative to Maximize Student Development (IMSD) Award              | 2014-2015 |
| 6. Academic Excellence Award UC Davis BMCDB Program                         | 2014-2015 |
| 7. 3rd Place, SFSU Student Showcase Poster Presentation                     | 2014      |
| 8. Experimental Biology Travel Award  | 2014      |
| 9. SFSU Chemistry and Biochemistry Student Association Travel Award         | 2014      |
| 10. Outstanding Presentation, SACNAS Poster Presentation                    | 2013      |
| 11. SACNAS Travel Award Recipient – NIH/NIGMS                               | 2013      |

12. Best Oral Presentation, UCSF Summer Research Training Program	2013
13. UCSF Amgen Summer Research Scholar	2013
14. Departmental Achievement Award (SFSU Dept Chem and Biochem)	2013
15. Honorable mention, EB ASBMB Poster Presentation	2013
16. NIH Minority Access to Research Careers (MARC) Scholar	2012-2014
17. NSF Louis Stokes Alliances for Minority Participation (LSAMP) Scholar	2013-2014
18. NIH Minority Biomedical Research Support - (MBRS-RISE) Scholar	2011-2012

### **Educational Committees and Volunteer Service:**

1. Founded and active faculty advisor for the STEM Club at SCC	2021-Present
2. Peer Connections Organizer	2021-Present
3. NIH-IMSD-MARC Community Connection Peer Group Mentor	2020-2021
4. NIH-MARC EEO Undergraduate Mentor at UC Davis	2020-2021
5. Solano Community College tutor for underrepresented STEM students	2020
6. Peer Reviewer for "Briefings in Bioinformatics", Martin Bishop: Editor-in-Chief	2019
7. NIH-MARC guest speaker at SFSU	2015, 2016
8. NIH-IMSD guest speaker at UC Davis	2018, 2021
9. BMCDB Student Diversity and Inclusion Committee	2018-2021
10. UC Davis BMCDB peer mentor	2017
11. BMCDB Recruitment Committee	2017-2018
12. BMCDB TGIF Committee	2016-2017
13. BMCDB Retreat Committee	2016
14. BMCDB Recreational Activities	2015-2020
15. UC Davis Lab Research Mentor (1 Master's and 12 undergraduates)	2015-2019
16. Young Scientist Program	2015-2017
17. SF State Lab Research Mentor (2 high school and 8 undergraduates)	2013-2014
18. ASBMB Undergraduate Chapter (formerly UAN)	2012-2014

### **Societies**

1. American Society for Biochemistry and Molecular Biology (ASBMB)	2016-2018
2. Chi Omega Lambda (XΩΛ) - National Honor Society of the ASBMB	2014
3. ASBMB Undergraduate Chapter, Founder and president of SFSU chapter	2012-2014
4. SFSU Chemistry and Biochemistry Student Association	2011-2014

### **Wet Lab Technical Skills**

- Biochemistry/Molecular Biology
  - Protein - expression in *E. coli*, protein expression in *P. Pastoris*, SDS-PAGE, western blotting, fluorescence anisotropy, spectrophotometric protease assays, protease inhibitor assays, FPLC, affinity chromatography,
  - DNA/RNA - ChIP-Seq, RNA-Seq, sequential IP-seq, sequencing library preparation, ChIP-qPCR, TdT-IP-qPCR (double-strand break assay), PCR, RT-qPCR, PCR mutagenesis, CRISPR gene editing, CRISPR transcriptional modulation, cloning, oligonucleotide design, DNA isolation, RNA isolation, DNA/RNA dot blot, slot blot, probe, Bioruptor and Covaris sonicators, Bioanalyzer, Qubit, pulsed-field gel electrophoresis, agarose DNA gel electrophoresis
- Cells
  - 2-color flow cytometry, assisted cell sorting, adherent and suspension cell line management, primary suspension cells, transfection and viral infections of primary cells and cell lines
- Cytogenetics/Imaging
  - 4 channel fluorescence microscopy, cell and slide preparation, EdU-DNA and BrdU-DNA imaging, EU-RNA imaging, immunofluorescence, BAC probe design and synthesis, fluorescence in situ hybridization (FISH)

4. Other
  - mouse dissection and spleen isolation, mouse colony breeding and management

### **Dry Lab Technical Skills**

1. Computational Biology
  - Cleaning, mapping, and visualizing RNA-Seq, ChIP-seq, OK-Seq, and TimEX genome-wide data. Quantifying differential expression of RNA-Seq and differential binding of ChIP-Seq datasets. Visualizing signal with profile plots and heatmaps around areas of interest. Sequence and motif extraction. Variant calling and analysis. Differential gene expression using RNA-Seq, Differential binding using ChIP-Seq. Calculating enrichment of genes of interest within larger gene sets.
2. Computational Biology Tools
  - Bedtools, Samtools, Deeptools, BCFTools Bowtie, STAR, Salmon Tophat, DESeq, edgeR, diffbind, UCSC Genome Browser, NCBI Genome Browser, HOMER, G4 Hunter, Genomic Association Tester, Python, R and Linux/Bash scripting, Jupyter Notebook, R studio, Kent Tools, sed, AWK
3. Computer Applications
  - SLURM HPC cluster computing, imageJ, FlowJo, Microsoft Office, SoftMax, ChemSketch

### **Other Work Experience**

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|----|--|---------------|-----------|
| 1. | University of California, Davis – Barlow Lab   | Davis, CA     | 2020-2021 |
|    | <ul style="list-style-type: none"> <li>• Postdoctoral Scholar</li> </ul>   |               |           |
| 2. | Inserv Company   | Fairfield, CA | 1998-2010 |
|    | <ul style="list-style-type: none"> <li>• Area Technical Manager for industrial chemical water conditioning</li> </ul>        |               |           |
| 3. | Oakland Zoo  | Oakland, CA   | 2007-2008 |
|    | <ul style="list-style-type: none"> <li>• Apprentice Elephant Keeper</li> </ul>   |               |           |
| 4. | Rockville Inn  | Fairfield, CA | 2005-2006 |
|    | <ul style="list-style-type: none"> <li>• Bartender</li> </ul>  |               |           |
| 5. | Water One  | Suisun, CA    | 2002      |
|    | <ul style="list-style-type: none"> <li>• Industrial Chemical Water Treatment Service Technician / Admin Assistant</li> </ul> |               |           |

### **Other Volunteer Experience:**

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|----|--|---------------|-----------|
| 1. | Michael Silva for Vacaville City Council District 3  | Vacaville, CA | 2020      |
|    | <ul style="list-style-type: none"> <li>• Data Management and Digital Communications Director</li> </ul>                        |               |           |
| 2. | Davis Community Meals  | Davis, CA     | 2018-2019 |
|    | <ul style="list-style-type: none"> <li>• Preparation of meals, set up, clean up</li> </ul>                                     |               |           |
| 3. | Mission Solano – Bridges to Life   | Fairfield, CA | 2016-2017 |
|    | <ul style="list-style-type: none"> <li>• Preparation of meals, set up, clean up</li> </ul>                                     |               |           |
| 4. | Marine Mammal Center   | Sausalito, CA | 2000-2016 |
|    | <ul style="list-style-type: none"> <li>• General Animal Rehabilitation</li> </ul>  |               |           |
| 5. | Suisun Marsh Natural History Association   | Suisun, CA    | 2000-2003 |
|    | <ul style="list-style-type: none"> <li>• General Wildlife Care and Rehabilitation</li> </ul>                                   |               |           |
| 6. | International Bird Rescue Research Center  | Suisun, CA    | 2001-2002 |
|    | <ul style="list-style-type: none"> <li>• Rehabilitation and cleaning oiled birds during the San Mateo Mystery Spill</li> </ul> |               |           |
| 7. | Oakland Zoo  | Oakland, CA   | 2000      |
|    | <ul style="list-style-type: none"> <li>• Elephant Exhibit/Barn Volunteer, general animal feeding and cleaning</li> </ul>       |               |           |