

EDUCATION

- Aug 2017–Dec 2022 **Master of Science** • Cellular, Molecular, & Microbial Biology
Specialized in microbial ecology and evolution
University of Montana
- Aug 2012–May 2017 **Bachelor of Science** • Biology, *Cum Laude*
Specialized in cellular, molecular, and genetic biology
Coastal Carolina University
- Aug 2012–May 2017 **Bachelor of Science** • Marine Science, *Cum Laude*
Coastal Carolina University

TECHNICAL EXPERTISE

Environmental collection and strain isolation of microbial organisms • Maintenance of microbial culture collections, including common BSL2 pathogens • Construction and maintenance of custom chemostat bioreactors • Determination of antimicrobial MIC and MBC • Preparation of myriad defined, undefined, rich, and minimal solid and liquid culture media • Compound light microscopy • Determination of viable cell density via spread plate and trypan blue methods • Determination of total cell density and cell volume via epifluorescence microscopy and related image analysis • Spectrophotometry and spectrofluorometry of microbial cultures • PAM fluorometry • Clark-type oxygen microsensor profiling • DNA and RNA extraction • Assessment of nucleic acid quality and quantity via spectrophotometry and fluorometry, including microfluorometric methods • General PCR, particularly 16S rRNA screening • General molecular cloning and preparation of expression constructs • Preparation of Illumina sequencing libraries • *De novo* microbial genome assembly from Illumina and Nanopore sequences • Functional microbial genome annotation • Phylogenetic reconstruction and related analyses • Comparative genomics of microbial genomes • Linux programming and practical command line computing • Management of a research lab space, including inventory maintenance, use of procurement software, and upkeep of EHS compliance • Proficient with Microsoft Office and Adobe-like vector graphics software

CURRENT APPOINTMENTS

- Jan 2025–*present* **Research Associate**
PIs: Jim Elser, PhD and Helena Klip, PhD
University of Montana, Flathead Lake Biological Station
- Conducting chemostat experiments testing the effects of phosphorous and nitrogen limitation on the growth and physiology of the “snow alga” *Chloromonas typhlos* (aka *Chlamydomonas nivalis*). Various biochemical parameters will be measured to assess physiology under these stressors.
- Oct 2023–*present* **Independent Contractor**
PI: Thomas Rau, PhD
Wintermute Biomedical Inc.
- Maintaining cultures of methicillin-resistant *Staphylococcus aureus* (BAA1026), *Pseudomonas aeruginosa* (ATCC27853), and *Escherichia coli* (ATCC25922). Conducting myriad experiments testing efficacy and assessing MOA of proprietary antimicrobials against these bacteria.
- Aug 2022–*present* **Research Laboratory Manager**
PI: R. Frank Rosenzweig, PhD
University of Montana, Division of Biological Sciences
- Established and managed a new space for the Rosenzweig Lab ahead of its return to the University of Montana. Currently responsible for chemical inventory, EHS compliance, lab equipment maintenance, and management of supplies during scientific experimentation.

PREVIOUS APPOINTMENTS

Mar–May 2024

Research Collaborator

PI: James Bosco, PhD

University of Montana, Division of Biological Sciences

Conducted a series of experiments testing expression efficacy of plasmid construct under several defined sugar environments to confirm mechanism of auto-induction in a novel broth. Assessed expression via *in vivo* eGFP signal in BL21 (DE3) and SHuffle T7 *Escherichia coli* backgrounds.

Feb–Mar 2024

Scientific Consultant

Supervisors: JM Christiansen and Michael Legg

Montana Repertory Theatre

Provided scientific consultation for a short on-stage science experiment for the show *Monster + Farmer* as part of the theater's 2024 Educational Tour. The story involved a teenage science protégé whose *Frankenstein*-inspired creation goes haywire.

Aug 2022–Dec 2024

Research Associate

PIs: Jim Elser, PhD and Matt Church, PhD

University of Montana, Flathead Lake Biological Station

Conducted long-term evolution experiments with *Chlamydomonas reinhardtii* under ecologically relevant nutrient limitations (low light, nitrogen, and phosphorus) in custom chemostats. Genomic and biochemical parameters were measured to assess evolutionary change in physiology.

Aug 2017–Dec 2022

Graduate Research Assistant

PI: Scott R Miller, PhD

University of Montana, Division of Biological Sciences

Generated 65+ cyanobacterial strains isolated from geothermal hot springs between 50 and 70°C in Yellowstone National Park. Employed myriad phylogenetic, genomic, and physiological approaches to understand thermal adaptation in the most thermotolerant phototrophs on Earth.

May–Jun 2017

Laboratory Assistant

Supervisor: Suzanne S. Senchak, M.S.

Coastal Carolina University, Biology Department

Prepared introductory biology laboratory classes for a summer session, which largely included simple assays and activities designed to highlight the basic chemical properties of life and characterize macromolecules. Updated lab protocols where necessary to streamline curricula.

Jan 2014–Jun 2017

Undergraduate Research Assistant

PI: Michelle M Barthet, PhD

Coastal Carolina University, Biology Department

Used Gateway Cloning techniques to generate expression constructs for several putative splicing targets of the chloroplast maturase MatK from *Arabidopsis thaliana* and *Oryza sativa*. Helped conceptualize an *in vitro* assay to confirm MatK enzymatic activity for the first time.

Aug 2013–Jun 2017

Assistant Laboratory Manager

Supervisor: Walter Showers Jr.

Coastal Carolina University, Marine Science Department

Prepared lower- and upper-division marine science laboratory classes, including marine biology, chemistry, and geology. Responsibilities also included EHS maintenance of research labs, and upkeep of department aquaria, stockrooms, and preserved specimens for the department.

Updated: March 2025

Reference contacts available upon request

PUBLICATIONS

Miller SR, Ulrich NJ, Rebbeck V, Wheeler T, and **Pierpont CL**. Evolution of post-transcriptional regulation shapes temperature adaptation of a thermophilic cyanobacterium. [IN PREP](#)

Brodrick JT, **Pierpont CL**, and Miller SR. Leveraging constraint-based metabolic modelling to investigate the principles of thermal adaptation during diversification of a thermophilic cyanobacterial clade. [IN PREP](#)

Bosco J, Gagliano E, Boshae K, Statz J, Wheeler T, Cuello D, Sliter A, Newby C, Lin B, Demeler A, **Pierpont C**, Yates-Hansen C, Sydor M, Ferrini M, Kuch K, Cooper B, Piggot B, Certel S, Hansen K, Sprang S, Bowler B, McClelland L, and Berkmen M. 2024. A galactose-based auto-expression system improves T7-inducible protein production in *Escherichia coli*. *Nature Scientific Reports*. [IN PRESS](#)

Pierpont CL, Baroch JJ, Church MJ, and Miller SR. 2024. Idiosyncratic genome evolution of the thermophilic cyanobacterium *Synechococcus* at the limits of phototrophy. *The ISME Journal*, 18(1). <https://doi.org/10.1093/ismejo/wrae184>

Pierpont CL, Ohkubo S, Miyashita H, and Miller SR. 2022. Draft genome sequence of the cyanobacterium *Synechococcus* sp. strain Nb3U1. *Microbiology Resource Announcements*, 11(5). <https://doi.org/10.1128/mra.00251-22>

Barthet MM, **Pierpont CL**, and Tavernier E. 2020. Unraveling the role of the enigmatic MatK maturase in chloroplast group IIA excision. *Plant Direct*, 4(3). <https://doi.org/10.1002/pld3.208>

FIELD EXPERIENCE

May 2023 **Yellowstone National Park, WY**
Field lead: Colette Berg (Fishman Lab, University of Montana)

Assisted in the collection of phenotypic measurements related to flower morphology from transects across two *Mimulus guttatus* populations near Lone Star geyser. Additionally, conducted a survey of pollinators found within these and another *M. guttatus* populations.

Nov 2021 **Yellowstone National Park, WY**
Field lead: Colette Berg (Fishman Lab, University of Montana)

Assisted in the off-season maintenance of field cameras placed near *M. guttatus* populations which exhibit different life history strategies related to thermal adaptation. Cameras were placed to capture flowering time phenology of these populations during the year. Snow gear was required for access.

Sep 2019 **San Juan Islands, WA**
Field lead: Nikea Ulrich (Miller Lab, University of Montana)

Assisted in environmental sampling conducted to grow a culture collection of *Acaryochloris marina*, a cyanobacterium that specializes on far-red light. Samples were collected from tunicate species found along piers and rocky outcroppings throughout the San Juan islands.

Jul 2019 **Yellowstone National Park, WY**
Field lead: C. Logan Pierpont (Miller Lab, University of Montana)

Led a five-person team in the collection of thermophilic microbial mat samples from sites $\geq 60^{\circ}\text{C}$ along Rabbit Creek and White Creek to enrich growing *Synechococcus* culture collection. FLIR images were also captured to obtain thermal images representative of each creeks' steep thermal gradient.

- Sep 2018 **Yellowstone National Park, WY**
Field lead: C. Logan Pierpont (Miller Lab, University of Montana)
- Led a two-person team to collect thermophilic microbial mats across a range of temperatures along Rabbit Creek and White Creek in the park's Lower Geyser Basin. This effort generated most of the 60+ *Synechococcus* A/B strains used for my graduate work.
- Aug 2018 **Hunter's Hot Spring, Lakeview, OR**
Field lead: C. Logan Pierpont (Miller Lab, University of Montana)
- Led a two-person team to collect thermophilic microbial mats across a range of temperatures from the source pool and related creeks of a small bath house in Lakeview, OR. This pool has been historically sampled for isolation of thermophilic *Synechococcus*.
- Jun 2018 **Yellowstone National Park, WY**
Field leads: Kory Kolis, Scott Miller (Fishman Lab and Miller Lab, University of Montana)
- Aided in a late-season phenotypic survey of *M. gutattus* thermal populations. Primarily participated in an exploratory sampling of thermophilic microbial mats across a range of temperatures from Rabbit Creek and White Creek in the park's Lower Geyser basin.
- Nov 2017 **Yellowstone National Park, WY**
Field leads: Kory Kolis, Tom Nelson (Fishman Lab, University of Montana)
- Aided in the off-season phenotypic survey of *M. gutattus* populations across the Lower Geyser Basin. Several locations were surveyed across the Upper and Lower geyser basins of the park, some of which required snow gear to access.

TEACHING EXPERIENCE

- Oct 2023–present **Private Science Tutor**
Self Employed
CLPierpont Science Consulting LLC
- SP2018 & SP2022 **Graduate TA, BIOB-272 Genetics & Evolution**
Professor: Doug Emlen, PhD
University of Montana, Division of Biological Sciences
- FA2017 & FA2021 **Graduate TA, BIOB-260 Cellular & Molecular Biology**
Professors: Mark Grimes, PhD and Scott Samuels, PhD
University of Montana, Division of Biological Sciences
- Aug 2014–May 2017 **Student Tutor**
Supervisor: Michael M Pierce, PhD
Coastal Carolina University, Department of Biology