

Director, DNA Sequencing Facility (6247U), Molecular &
Cell Biology - 70831
University of California, Berkeley

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Posted Aug. 2, 2024, set to expire Nov. 28, 2024

Job Title	Director, DNA Sequencing Facility (6247U), Molecular & Cell Biology - 70831
Department	
Institution	University of California, Berkeley Berkeley, California
Date Posted	Aug. 2, 2024
Application Deadline	Open until filled
Position Start Date	Available immediately
Job Categories	Director/Manager
Academic Field(s)	Research/Technical/Laboratory
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Job Description

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About Berkeley

At the University of California, Berkeley, we are committed to creating a community that fosters equity of experience and opportunity, and ensures that students, faculty, and staff of all backgrounds feel safe, welcome and included. Our culture of openness, freedom and belonging make it a special place for students, faculty and staff.

The University of California, Berkeley, is one of the world's leading institutions of higher education, distinguished by its combination of internationally recognized academic and research excellence; the

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transformative opportunity it provides to a large and diverse student body; its public mission and commitment to equity and social justice; and its roots in the California experience, animated by such values as innovation, questioning the status quo, and respect for the environment and nature. Since its founding in 1868, Berkeley has fueled a perpetual renaissance, generating unparalleled intellectual, economic and social value in California, the United States and the world.

We are looking for equity-minded applicants who represent the full diversity of California and who demonstrate a sensitivity to and understanding of the diverse academic, socioeconomic, cultural, disability, gender identity, sexual orientation, and ethnic backgrounds present in our community. When you join the team at Berkeley, you can expect to be part of an inclusive, innovative and equity-focused community that approaches higher education as a matter of social justice that requires broad collaboration among faculty, staff, students and community partners. In deciding whether to apply for a position at Berkeley, you are strongly encouraged to consider whether your values align with our [Guiding Values and Principles](#), our [Principles of Community](#), and our [Strategic Plan](#).

At UC Berkeley, we believe that learning is a fundamental part of working, and our goal is for everyone on the Berkeley campus to feel supported and equipped to realize their full potential. We actively support this by providing all of our staff employees with at least 80 hours (10 days) of paid time per year to engage in professional development activities. To find out more about how you can grow your career at UC Berkeley, visit grow.berkeley.edu.

Departmental Overview

The Department of Molecular and Cell Biology (MCB) is one of the largest academic departments at UC Berkeley. By several measures (including number of faculty and students, budget, and assigned square feet). The department is larger than many UCB colleges and schools. The department represent over 85 faculty FTE (including Adjuncts, Professors of the Graduate School, active emeriti and 21 HHMI professors); 55 Researchers and Specialists; 150 post-doctoral researchers; 220 graduate students; 80 department staff members; and total state and extramural payroll of approximately 1000 (including Graduate Student Instructors, Graduate Student Researchers and research staff). Financial resources include approximately \$55M in annual extramural funding (which accounts for over half of the total sponsored research awards in the College of Letters & Science) and over \$40M other fund sources. The department has 1,800 declared undergraduate majors (the largest majors on the Berkeley campus) and a total annual enrollment in classes of ~20,000. Department personnel are currently housed in eight buildings located in three widely separated parts of the campus.

Position Summary

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Responsible for the daily operation and managing all administrative and technical aspect of the MCB DNA Sequencing Facility which supports research by providing Sanger sequencing, Fragment Analysis, High-Throughput Nucleic Acid Purification/Quantification/Normalization, PCR Reaction Cleanup, Fragment Analysis, Human Cell Line authentication, HPSC Genetic Analysis, Cow Haplotyping, Next Generation Sequencing Library prep and Sequencing including Bioinformatics, Microfluidic Droplet Generation, Custom Assay Development, Open Access Instruments and free consultation services as requested by members of over 300 research labs on and off campus recharging approximately \$1,000,000 yearly.

Application Review Date

The First Review Date for this job is: Monday, July 29, 2024

Responsibilities

Consultation and Special Projects:

- Consult with researchers to help with experimental design, technical issues, and troubleshooting poor and failed results.
- Establish new genotyping and sequencing protocols for customer specific projects, for example, Cow Haplotyping assay for American Wagyu identification, HPSC Genetic Analysis for detection of karyotypic abnormalities in human ES and iPS cells, and fragment analysis for CRISPR screening of indels (ensure that necessary matrix standards and run modules are functioning properly).
- Prepare genomic extracts for use with Geneprint 10 PCR assay and analyze short tandem repeat (STR) data with GeneMapper software for human cell line authentication; communicate results to Director of Cell Culture Facility.
- Assist in customized genomic DNA preps from various sources (human cell, arthropod, gram positive and gram-negative bacteria, yeasts, mouse tissue, plant leaves, etc) according to customers' requests.
- Optimize extraction conditions for cells with complex extracellular matrices including highly crosslinked peptidoglycan, chitin, cellulose, and other polymerized proteoglycans and carbohydrates.
- Discuss suboptimal results with customers and suggest strategies to improve sample preparation - for example, grinding plant or insect tissue in liquid nitrogen prior to extraction.
- Test and develop new protocols to streamline sample processing.
- Keep up to date with technological advances in DNA sequencing technologies including Next Generation Sequencing and attend workshops, seminars, and meetings.

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- R&D of new applications and write methods for the Beckman Biomek liquid handlers and test new cycle sequencing protocols for handling difficult templates.
- Run Oxford Nanopore MinION NGS system using MinKnow software and Metrichor real-time data analysis platform.
- Perform bioinformatics pipeline on an HPC cluster for sorting and sequence alignments.
- Research new reagents and equipment for purchase and prepare federal instrumentation grant proposals and applications for campus funding for additional equipment that require solicitation of contributions from several research laboratories.

Perform weekly re-start of four 3730XL DNA Analyzers, three Beckman Coulter Biomek liquid handlers and the computers.

- Clean four ABI 3730XL DNA Analyzers and load new polymers regularly.
- Change capillary arrays and run matrix standard when necessary.
- Perform instrument calibrations and regular maintenance work on four DNA Analyzers and three Biomek automated liquid handlers.
- Monthly: spatial calibrations.
- Weekly: equipment restart, preventative maintenance for memory issues, framing of Biomek NX and FX decks and record data on computers.
- Bleach lines quarterly or more frequently, as needed.
- Troubleshoot equipment problems and make adjustment improve performance or set up a service call with instrument service providers to solve the problem.
- Set up DNA Analyzers and Biomek NX workstations ready for the samples.
- Assemble cycle sequencing reactions, enter sample and customer names to the database, and schedule sequencing runs on ABI 3730 XL DNA Analyzers.
- Purify DNA sequencing reactions with homemade CleanSEQ Dye Terminator Clean-Up system using Beckman Coulter Biomek NX Automated Liquid Handlers.
- Perform high-throughput nucleic acid purification/quantification/normalization and PCR cleanup reactions using Beckman Biomek Automated liquid handlers.
- Quantify DNA with A260/280 spectrophotometer or Qubit measurements.
- Analyze sequencing data using ABI Sequence Analysis Software V6 and e-mail sequence results to customers.
- Re-inject samples or repeat the reaction with different protocols as appropriate.
- Maintain precise records of all work.
- Help collect DNA samples from five drop off locations on campus, organize DNA samples for cycle sequencing reaction assembly.
- Prepare diluted BigDye and dGTP enzyme solutions.

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- Test new BigDye and dGTP lots for activity, assay effect of PCR additives to sequencing reactions and update SOPs when needed.
- Prepare and QC homemade CleanSeq reagent and homemade Ampure reagent for reaction cleanup and maintain sufficient supplies.
- Prepare buffers and solutions.
- Set up genotyping samples by creating run modules according to the fragment size and the dye-sets used and change the filter set in ABI 3730XL for the particular dye-set.
- Evaluate genotyping run results and email to customer.
- Maintain adequate levels of supplies and prepare or order more as needed.
- Development and maintenance of standard operating procedures documentation for general lab reference.
- Maintain active BUA and ensure compliance with EH&S regulations, coordinate safety inspections and hazardous waste management.

Supervision/Management:

- Responsible for interviewing, hiring, firing, scheduling, training, assigning tasks, taking discipline/corrective actions, and approving/amending timecards off all technical employees and undergraduate laboratory assistants.
- Supervise and help to solve problems that arise (such as with software, scheduling, sample processing, instruments, supply stocks, customer service, so on).
- Oversee all work and monitor all activities to ensure that samples are processed properly in timely manner.
- Delegate tasks and responsibilities according to staff's abilities and to use their time efficiently and monitor their activities and progress.
- Evaluate their performance and implement changes in job assignment if necessary.
- Meet with staff on a regular basis to discuss work related issues, set new goals and implement changes in procedures and job assignment.
- Conduct annual performance evaluations and provide on-going performance feedback as necessary.
- Prepare federal instrumentation grant proposals and applications for campus funding for additional equipment if necessary.
- Responsible for budgetary forecasting and planning, operational policy and procedure development and changes.

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Original Research in Development of Novel DNA Polymerases

- Purify recombinant thermophilic DNA polymerases using FPLC, nickel, or cobalt resin.
- Run purified DNA polymerases on SDS-PAGE to determine purity and quantity.
- Assay for activity, processivity with heparin trap, PCR yield/specificity, thermostability, and Sanger sequencing performance on variety of DNA templates containing secondary structures, repetitive motifs, and skewed GC content.
- Summarize and prepare data for publications and invention disclosures, when appropriate.
- Set up microfluidic workstation with syringe pumps, CCD camera, and python-based control software.
- Optimize droplet size and flow rate. Establish compartmentalized self-replication protocol for molecular evolution of novel thermostable polymerases.
- Develop alternate protocol for heat-labile polymerases such as Phi29.
- Prepare mutagenized Taq libraries using gene assembly methods to combine polymerase fragments with challenge motifs and work up each round of selection with additional mutagenesis and cloning.
- Establish protocols for mutagenesis via error-prone PCR, in vitro recombination, and site saturation.
- Develop assay to monitor enrichment of active polymerases after each round of selection.
- Analyze sequence library diversity with NGS.

Required Qualifications

- Focus of knowledge and skills dependent on area of specialty (laboratory research or instructional/experimental design).
- Advanced and highly specific knowledge and expertise associated with conducting and reporting on scientific research experiments and findings.
- Advanced knowledge of a wide variety of specialized laboratory equipment.
- Solid leadership skills associated with planning work assignments, establishing priorities, scheduling instructional space, and ensuring completion of multiple projects.
- Strong interpersonal skills to develop and maintain effective working relationships with students, faculty and staff.
- Solid knowledge of data acquisition and analysis techniques.
- Advanced knowledge of research discipline or instructional design to collaborate effectively with faculty and function as a resource to research and instructional associates.

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- Strong interpersonal communication skills to effectively supervise all levels of staff.
- Strong abilities to conduct and report on scientific experiments and findings.
- Advanced knowledge of necessary lab safety procedures and requirements, as well as chemical disposal guidelines.
- Bachelor's degree in related area and/or equivalent experience/training.

Preferred Qualifications

- Advanced degree and/or equivalent experience.

Salary & Benefits

For information on the comprehensive benefits package offered by the University, please visit the University of California's [Compensation & Benefits](#) website.

Under California law, the University of California, Berkeley is required to provide a reasonable estimate of the compensation range for this role and should not offer a salary outside of the range posted in this job announcement. This range takes into account the wide range of factors that are considered in making compensation decisions including but not limited to experience, skills, knowledge, abilities, education, licensure and certifications, analysis of internal equity, and other business and organizational needs. It is not typical for an individual to be offered a salary at or near the top of the range for a position. Salary offers are determined based on final candidate qualifications and experience.

- The budgeted salary or hourly range that the University reasonably expects to pay for this position is \$80,400.00 - \$145,400.00.
- This position is exempt, paid monthly.
- This is a full-time, Career position.
- This position is eligible for full UC benefits.

How to Apply

- To apply, please submit your resume and cover letter.

Diversity Statement

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Please include, as part of your application a brief (1-2 paragraph) statement on your contributions to diversity, equity, inclusion, and belonging in your professional experience.

Advancing diversity, equity, and inclusion are fundamental to our UC Berkeley Principles of Community, which states that "every member of the UC Berkeley community has a role in sustaining a safe, caring, and humane environment in which these values can thrive."

Other Information

- This is not a visa opportunity.

Conviction History Background

This is a designated position requiring fingerprinting and a background check due to the nature of the job responsibilities. Berkeley does hire people with conviction histories and reviews information received in the context of the job responsibilities. The University reserves the right to make employment contingent upon successful completion of the background check.

Equal Employment Opportunity

The University of California is an Equal Opportunity/Affirmative Action Employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, or protected veteran status. For more information about your rights as an applicant, please see the https://apptrkr.com/get_redirect.php?id=5480942&targetURL=U.S. Equal Employment Opportunity Commission poster.

The [University of California's Affirmative action policy](#).

The [University of California's Anti-Discrimination policy](#).

To apply, visit

https://careerspub.universityofcalifornia.edu/psc/ucb/EMPLOYEE/HRMS/c/HRS_HRAM_FL.HRS.CG_S



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Contact Information

Please reference Academickeys in your cover letter when
applying for or inquiring about this job announcement.

Contact

N/A

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