position description

Date: November 2020

Title: Research Assistant 3

Department: Genetics & Genome Sciences

School: Medicine

Location: BRB

Supervisor Name and Title: Christopher D McFarland, PhD, Assistant Professor

POSITION OBJECTIVE

Working under limited supervision, the Research Assistant 3 will perform research tasks related to experimental quantitative cancer evolution and multiplexed genome-engineering in mice. The research assistant will coordinate, design, implement, test and validate data collection and analysis methods in molecular biology and genetics. This position will work with animals.

ESSENTIAL FUNCTIONS

1. Working closely with the principal investigator, oversee, develop, and optimize experiments on quantitative animal modeling of lung cancer and multiplexed genome engineering. (25%)
2. Carry out complex research assignments of a non-routine nature. Key complex tasks include the design and coordination of plasmid pools, coordination of mouse breeding, and generating DNA libraries from experiments with large sample sizes. (20%)
3. Devise new protocols and techniques for research projects involving a high degree of skill and training. Specific tasks include the design of new plasmid pools, production and administration of recombinant viruses to live mice, animal dissections, immunohistochemistry, and general molecular biology work (plasmid cloning (including sgRNA design), PCR, DNA extractions, etc..). (20%)
4. Evaluate adequacy of techniques; study and test new procedures and analyze data. Review the efficiency of *in vivo* genetic engineering techniques and quantitative precision of experiments. (10%)
5. Coordinate laboratory/research activities. Produce recombinant viral vector pool and sustain the appropriate levels of colony size to ensure budgetary availability to all users. This includes but is not limited to providing care for animals, inspecting animals regularly, maintaining ID/records of all animals, and keeping datasheets up-to-date and circulated appropriately. Monitor critical lab infrastructure, including freezers and the equitable allocation of space. (10%)
6. May monitor the laboratory budget. Review lab inventory and monitor procurement, as needed. May also help solicit services from gene synthesis, animal and sequencing vendors. (5%)
7. May supervise students and technicians. Train new staff regarding standard laboratory policies as well as basic molecular genetics research techniques. (5%)
8. May co-author research projects. Participate in manuscript and grant writing, review data and figure quality, co-author research projects and provide data to the principal investigator for sponsor progress reports, manuscripts, grant and pilot applications. (5%)

NONESSENTIAL FUNCTIONS

Perform other duties as assigned. Duties include initial lab set-up tasks. (<1%)

CONTACTS

Department: Daily contact with supervisor and laboratory personnel to discuss research projects.

University: Occasional contact with other departments and clients throughout the university, and with cross-institutional collaborations to discuss research.

External: Limited or no contact with vendors to exchange information.

Students: Frequent contact with students, fellows, and medical students to exchange information.

SUPERVISORY RESPONSIBILITY

May supervise students and technicians.

QUALIFICATIONS

Experience: 3 to 5 years of related experience required.

Education/Licensing: Bachelor’s degree in Science required.

REQUIRED SKILLS

1. Has knowledge of commonly used concepts, practices, and procedures within a particular field.
2. Relies on instructions and pre-established guidelines to perform the functions of the job.
3. Ability to operate laboratory equipment.
4. Must demonstrate compliance with university animal research and care (ARC) policies and procedures and compliance to regulations of the Animal Welfare Act, Public Health Service Policy, AAALAC guidelines and other applicable regulatory guidelines.
5. Must demonstrate compassion for animals within university facilities and dedication to the Animal Resource Center’s mission. Must handle animals with care and respect at all times.
6. Must be able and willing to learn new techniques, procedures, processes, and computer gear to protect the health of the animals.
7. Previous experience working with animals preferred.
8. Strong molecular biology skills (PCR, DNA library prep, cloning, Retroviral constructs).
9. Strong organization skills and good habit of maintaining a clean lab working environment; demonstrate attention to detail and accuracy, time management skills, and proven ability to successfully follow-through on assigned projects.
10. Professional and effective verbal and written communication skills and good interpersonal skills with the ability to work and communicate with various individuals within and external to the university.
11. Ability to work effectively independently and collaboratively within a team (must be highly motivated, responsible, dependable and a self-starter).
12. Ability to maintain meticulous, complete, and easily retrievable laboratory data.

13. Ability to willingly learn new techniques and procedures as needed, follow established protocols or laboratory procedures and request clarification if necessary.
14. The lab is also pioneering *in situ* barcode sequencing techniques and any experience with Illumina sequencing platforms (HiSeq, MiSeq) is a plus.
15. Ability to meet consistent attendance.
16. Ability to interact with colleagues, supervisors and customers face to face.

WORKING CONDITIONS

General laboratory environment: The lab is an open floor plan with abundant bench space. Ample desk space with computers are also provided. The lab is equipped with one shared fume hood for storage of hazardous and non-hazardous materials. Handling of recombinant vectors requires BSL-2 training. A common equipment room located adjacent to the lab are equipped with animal euthanization station. The shared cell culture room nearby is equipped with incubators, culture hood, and microscope. Access to a multi-color Flow Cytometer and a Seahorse Analyzer belonging in a neighboring lab. The employee should expect frequent interactions with lab members and must be willing to collaborate.

Case Western Reserve University's animal facilities are accredited by the Association for the Assessment and Accreditation of Laboratory Animal Care (AAALAC) and is managed according to the "Guide for the Care and Use of Laboratory Animals" appropriate Federal Animal Welfare Regulations, and the Public Health Service "Policy on the Humane Care and Use of Laboratory Animals." This position, and all animal research personnel, are subject to internal compliance to SOM Animal Resource Center Standard Operating Procedures and to compliance regulations of the Animal Welfare Act, Public Health Service Policy, AAALAC guidelines, the State of Ohio Veterinary Practice Act, Federal Drug Enforcement Administration regulatory guidelines, US Food and Drug Administration Center for Veterinary Medicine regulations and other applicable regulatory guidelines