

**PRINCIPAL ADMINISTRATIVE
POSITION DESCRIPTION**

for the period 06/01/2022 to 05/30/2023

NAME: _____

TITLE: Postdoctoral Fellow

DEPARTMENT: Pharmacology

POSITION FUNCTION

The Postdoctoral Fellow will perform independent and/or directed research activities to fulfill the aims of the laboratory's NIH-funded grant under the direction of the laboratory Principle Investigator (PI), Dr. Ben Richardson (brichardson29@siu.edu) in the Department of Pharmacology at Southern Illinois University School of Medicine in Springfield, IL. Broadly, this laboratory addresses issues in understanding neural circuits and their role in disease using a multi-level state-of-the-art approach. The primary activities of the Fellow will be to perform whole cell electrophysiology, in vivo electrophysiology, rodent behavioral assays, viral injections in rodents, microscopy, and training of students and laboratory staff.

The main role of the Fellow is to design and execute studies aimed at understanding the neurological basis of neurodevelopmental disorders, including Autism Spectrum Disorder. Specifically, these studies will determine how deletion of Autism-linked genes disrupts the development and mature circuit function of the cerebellar cortex. To address functional cellular level changes in developing and adult mutant mice, classic electrophysiology approaches in brain slices from wildtype and mutant will be combined with ligand photo-uncaging, optogenetics and pharmacology. In parallel, a transgenic approach will be used to determine how cellular level changes may lead to disrupted motor and non-motor behaviors. Rodent behavior in a battery of sensory, motor, anxiety, memory, and social behaviors will be evaluated with the potential to pharmacologically or chemogenetically modulate cerebellar influence on behavioral performance. In line with other projects in the lab, the Fellow may also lead efforts to identify the underlying cerebellar-relevant nodes of the circuit involved in these disrupted behaviors observed in mutant mice. Finally, the fellow may contribute to in vivo recording studies in wildtype and mutant mice to determine how cellular and synaptic level changes affect activity of the cerebellar circuit in vivo.

The position is one year in duration and will be renewed annually based on Fellow performance and funding availability.

ORGANIZATIONAL RELATIONSHIPS

The Fellow will report to (PI) Principal Investigator. PI reports to the Chairman of Pharmacology. The Chairman of Pharmacology reports to the Dean and Provost.

DUTIES AND RESPONSIBILITIES

The Postdoctoral Fellow will work with Dr. Richardson to design and execute experiments in order to maintain progress on NIH-funded research projects and/or develop new or independent research projects as described above. The Fellow will be involved in experimental design,

electrophysiological recording, histology, rodent behavioral testing, surgical preparation of animals, statistical data analysis, and manuscript preparation for all electrophysiological and anatomical experiments in the project. The Fellow will also contribute to general laboratory management and training of graduate students or other research staff. Opportunity to travel will to present data at scientific meetings is available.

Demonstrates, by actions, commitment to the mission and the behavioral standards of SIU School of Medicine. Provides excellent service to both internal and external customers through collaboration and partnership; compassion and respect; integrity and accountability; diversity and inclusion; as well as continuous learning and improvement.

“The following information is intended to be representative of the work performed by incumbent in this position and is not all-inclusive. The omission of a specific duty or responsibility will not preclude it from the position if the work is similar, related, or a logical extension of position responsibilities.”

I. Administration	<u>10</u> %
1. Help obtain information relevant to making purchase decisions.	
2. Direct the management and genotyping of the animal colony in conjunction with research staff.	
3. Help order approved laboratory supplies and reagents.	
4. Assist with scheduling experiments, laboratory equipment usage and availability.	
II. Teaching	<u>15</u> %
1. Assist in training students and laboratory staff.	
III. Research	<u>75</u> %
1. Conduct investigator-initiated and independent research projects under the general supervision of the PI or in conjunction with graduate students.	
2. Perform survival viral injection surgery in rodents.	
3. Design neuron tract tracing and whole-cell electrophysiology experiments.	
4. Perform or direct histological preparation (including microscopy) and neurochemical procedures consistent with the project.	
5. Prepare reagents used for experiments with accuracy and consistency.	
6. Perform data reduction and analysis.	
7. Maintain detailed records of laboratory work performed.	
IV. Service	<u>0</u> %

AUTHORITY AND RESPONSIBILITY

The Fellow may supervise graduate student or research staff as assigned by the PI. The Fellow will maintain accurate and updated laboratory records and protocol compliance. The Fellow can make recommendations to PI regarding employee hiring but has no authority to act.

MINIMUM QUALIFICATIONS

PhD in an appropriate field (e.g. pharmacology, biology, neuroscience, etc.).
Experience in electrophysiology.
Sensitive to the needs of underrepresented minority populations.

DESIRABLE QUALIFICATIONS

Experience in data analysis and preparation for publication.
Excellent written and oral communication skills.
Self-motivated, well-organized, detail-oriented, displays initiative.
Ability to work well in a team and independently.
Previous experience working with mice or rats.

WORKING CONDITIONS/PHYSICAL DEMANDS

The Postdoctoral Fellow will work in Dr. Richardson's laboratory and in the SIU animal facility, which includes the use of potentially hazardous chemicals. No physical demands are present.

Incumbent

Date

Supervisor

Date

Department Head/Chair

Date

PHYSICAL AND ENVIRONMENTAL REQUIREMENTS

SIU SCHOOL OF MEDICINE

Incumbent: _____ Classification: _____

Position No. (If applicable): _____ Department: **Pharmacology-SMS**

WORK ENVIRONMENT: (Check all applicable environments)

<input checked="" type="checkbox"/> Office	<input type="checkbox"/> Hospital
<input type="checkbox"/> Clinic	<input type="checkbox"/> Warehouse
<input checked="" type="checkbox"/> Research Laboratory	<input type="checkbox"/> Outdoors
<input type="checkbox"/> Other (Be Specific): _____	

PHYSICAL DEMANDS:	Seldom	Occasionally	Frequently	Constantly	N/A
(Indicate frequency of activity during performance of position duties)	(Performed rarely less than 2% of the time)	(Performed less than 25% of the time)	(Performed 26% to 50% of the time)	(Performed 51% or most of the time)	

(Click on the Physical Demands Definitions button at the bottom of the form for a list of physical demands definitions)

Reading	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writing	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Speaking	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Close visual acuity	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Travel	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hearing - Conversation	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hearing - Other Sounds	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stooping	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Squatting	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gross hand manipulation	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fine hand manipulation	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working in dust, fumes, gases, or irritants	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working at heights	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working in extreme cold, heat and/or humidity	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working in close quarters	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Climbing	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operating motor vehicles	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sitting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Standing	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walking	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working above shoulder level	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twisting	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kneeling	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pushing or pulling			20 - 40 lbs.		<input type="radio"/>
Carrying		10 - 20 lbs.			<input type="radio"/>
Lifting	10 - 20 lbs.				<input type="radio"/>
Other (Please list): _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I affirm the environmental and physical demands listed on this form are an accurate reflection of the requirements of this position to the best of my knowledge and belief.

I have read, understand and am capable of meeting the physical and environmental demands of this position.

Supervisor Signature	Date	Supervisor Name	Employee Signature	Date
HR-0195S 05/20		Ben Richardson		
	<input type="button" value="Clear"/>	<input type="button" value="Print"/>	<input type="button" value="Physical Demands Definitions"/>	Page 1 of 1