

# LABORATORY PLAN FOR A SAFE RETURN

Please complete the form below to provide your "Laboratory Plan for a Safe Return".

## Section 1: GENERAL INFORMATION

**A) List personnel (including the PI) involved in research that require access to campus facilities:**

<u>Name</u>	<u>email</u>	<u>Building</u>	<u>Hrs/day</u>	<u>Days/week</u>
Xuefei Huang	<a href="mailto:huangxu2@msu.edu">huangxu2@msu.edu</a>	CEM	2	7
Zahra Rashidi	<a href="mailto:rashidij@chemistry.msu.edu">rashidij@chemistry.msu.edu</a>	CEM	1	3
Weizhun Yang	<a href="mailto:yang@chemistry.msu.edu">yang@chemistry.msu.edu</a>	CEM	8	4
Shuyao Lang	<a href="mailto:langshuy@msu.edu">langshuy@msu.edu</a>	CEM	4	5
Zibin Tan	<a href="mailto:tanzibi1@msu.edu">tanzibi1@msu.edu</a>	CEM	1	3
Po-han Lin	<a href="mailto:linpoha1@msu.edu">linpoha1@msu.edu</a>	CEM	6	6
Sherif Ramadan	<a href="mailto:sramadan@chemistry.msu.edu">sramadan@chemistry.msu.edu</a>	CEM	10	6
Mengxia Sun	<a href="mailto:sunmeng3@chemistry.msu.edu">sunmeng3@chemistry.msu.edu</a>	CEM	3	3
Cameron Talbot	<a href="mailto:talbotc2@msu.edu">talbotc2@msu.edu</a>	CEM	6	5
Hunter McFall-boegeman	<a href="mailto:mcfallbo@chemistry.msu.edu">mcfallbo@chemistry.msu.edu</a>	CEM	1-2	1-2
Chia-Wei Yang	<a href="mailto:yangch53@msu.edu">yangch53@msu.edu</a>	CEM	6	5
Kunli Liu	<a href="mailto:liukunli@chemistry.msu.edu">liukunli@chemistry.msu.edu</a>	CEM	3	3
Shivangi Chugh	<a href="mailto:chughshi@chemistry.msu.edu">chughshi@chemistry.msu.edu</a>	CEM	1	5

**B) Department Chair, School Director or Institute Director**

Name: Rob Maleczka

Email address: [maleczka@chemistry.msu.edu](mailto:maleczka@chemistry.msu.edu)

Department name: Chemistry

**C) Associate Dean for Research (or designee):**

Name: Eric Hegg

Email address: [erichegg@msu.edu](mailto:erichegg@msu.edu)

**D) Acknowledgement of building safety measures:**

- All office and non-laboratory work will be conducted remotely as required in the Executive Order.
- Any individual's on-campus presence should be limited to the time it takes to do their on campus work.
- All lab/research team members have masks/face covers to wear when entering the building.
- There is a mandatory use of cloth face coverings/masks in all public areas or when more than 1 person present.
- All lab/research team members know that it is **required** to fill out and submit a health screening form prior to entering a building.
  - For some, this will include an additional email submission (e.g., field site managers)
- Should someone in your research group have symptoms or test positive for COVID-19 immediately notify your Chair/Unit Administrator, University Physician and EHS.

The laboratory will need to be properly cleaned and disinfected. Personnel who are ill are required to stay at home.

- Should someone in your research group test positive for COVID-19, send all personnel home and contact the University Physician to report as much information as known at the time.
- Building conference rooms and cafeteria spaces must not be used.
- Phones, video conferencing or other electronic means must be used for group communications until further notice
- If they desire, potentially vulnerable individuals should be allowed to continue to work from home.

## **Section 2: PROPOSED WORK TO BE PERFORMED**

### **A) Will any of your research during the reactivation involve the following?**

Animals:

Species: Mouse

Animals will be taken to my laboratory:

*Be sure to contact CAR at [carinfo@msu.edu](mailto:carinfo@msu.edu) for any animal work planning.*

Hazardous chemicals:

Radioisotopes:

Biohazards:

Recombinant DNA:

Human samples:

### **B) Please list the planned preparations or experiments that require time in the lab.**

1. Synthesis of antigens to enable the development of anti-SARS-CoV-2 vaccines
2. The development of anti-cancer vaccines and cancer diagnostics. This is an ongoing project. I plan to submit a proposal on multiplex detection and immune-profiling of cancer tissues in vivo for the October cycle. Preliminary results on this aspect will be critical for the success of the application.
3. The development of anti-microbial vaccines. Our grant renewal is coming up for this project. Also, I am planning to submit a proposal later this year or early 2021 on the development of a broad spectrum vaccine against multiple types of microbial species.
4. Synthesis of heparan sulfate oligosaccharides and glycomimetics as enzyme inhibitors. The heparan sulfate synthesis grant is up for renewal right now. I also plan to submit a new grant on the glycomimetics project. The ability to get more preliminary data will be critical to enhance the success of grant application.
5. Click or tap here to enter text.

**C) At any point in time, how many laboratory members will be present in the specified laboratory research spaces?** The Huang group has three laboratories in the chemistry building, room 332, 426 and 532. Room 332 is about 1100 ft<sup>2</sup>, which is sparsely used as the biological research in the group has moved to IQ. Room 332 typically has no more than 2 lab members at one time. Room 426 is about 1500 ft<sup>2</sup>, which will have no more than 6 lab members at one time. Room 532 is about 600 ft<sup>2</sup>, which will have no more than 3 lab members at one time. Individual research space is physically separated by aisles containing a two back-to-back fume hoods and benchtops. This physical barrier ensures separation(>6 feet) of each researcher. Only 1 researcher is allowed to work in one aisle, where he/she stands in front

of the fume hood and benchtop. At the end of each aisle each student will have an isolated desk space. The student desk space will be at least 6 feet apart when occupied. Students will follow social distancing rule when entering and exiting the lab. Colored floor tape will be used to block off areas (6 feet) around the rotary evaporator, fridge and oven to ensure social distancing. **SHIFTS:** The lab will maintain an electronic log (google calendar) of people coming and going. Students will work in shifts to ensure no overcrowding in the lab.

**D) Describe the plan to pause the above work and experiments in a safe and prompt manner if necessary.** For non-COVID-19 related research, we will not start long term experiments. All researchers returning to research will be reminded that in case research is restricted generally or if lab/research staff experience a positive COVID-19 case, all non-COVID-19 related research in chemistry will be shut down within 12 hours. In those cases, all ongoing reactions will be safely stopped and worked-up. All chemicals and materials will be stored properly. All temporary waste storage containers will be emptied and wastes are properly labeled and stored. A senior laboratory personnel and the PI will then inspect the lab to ensure all equipment including hotplate, heater, rotavap, circulating chiller, lyophilizer and HPLC are turned off. The doors of refrigerators and freezers are properly shut. All faucets including those in the fume hoods are turned off.

A SOP on these procedures has been developed and sent electronically to all researchers in the lab.

### Section 3: SAFETY PLANS

**Safety plans must be in place for the main lab/research space as well as for shared spaces and equipment.**

- Shared spaces include investigator assigned space that is a) open labs with multiple investigators and/or b) lab space shared with other investigators (e.g., tissue culture rooms, surgery rooms, microscope rooms, etc.).
- Shared equipment would include the PI's equipment in different areas of the laboratory/shared research space which is shared within the lab or with other labs.
- This section does not include building based cores/facilities that are overseen by the department, building or chair (e.g. autoclaves). These areas will have SOPs developed in the building plan.

#### **A) Time in the laboratory, research areas and shared spaces**

##### *1. Main Laboratory/Research Space:*

A centralized laboratory log must be maintained and should have the day and time in and out of a building for each lab member. Examples include: an electronic laboratory calendar (e.g., Outlook) or online excel spreadsheet. Shift work should be considered to reduce the number of personnel in the laboratory at any one time.

**There is a laboratory log for my laboratory personnel to enter their time at work (day, time in and time out).**

We have created a google calendar to coordinate shifts of research personnel.

yes

##### *2. Shared space/equipment:*

An electronic calendar will be used for personnel to reserve time for my shared spaces (e.g. tissue culture room) and equipment.  yes

3. Responsibility for other shared space/equipment used my laboratory:

Shared Area/Shared Equipment	Room, Bldg	Person responsible	Email Address	Department	Other
DLS	332	Kunli Liu	<a href="mailto:liukunli@chemistry.msu.edu">liukunli@chemistry.msu.edu</a>	Chemistry	

**B) Strategy for physical distancing**

*A distance of at least 6 feet should be maintained between individuals. The total occupancy of a lab should be determined. Floor tape can be used to demarcate work areas. Traffic flow directions in a lab should be considered.*

1. **Please describe the physical distancing plan for your main laboratory/research space:**

Based on the size of the lab space assigned, there will be no more than 6 people in 426, no more than 3 people in 532 or 332. Each person except those whom live in the same household will maintain at least 6 feet between individuals. For work bench and fume hood, one aisle will only have one researcher. The desk space usage will be kept at a minimum, and will be kept at least 6 feet apart when in use.

2. **Please describe the physical distancing plan for your shared spaces/equipment:**

For DLS, anyone who would like to use it will contact Kunli to sign up. Tapes will be used to mark the 6 ft perimeter from the instrument.

**C) Personal Protective Equipment (PPE)**

a) Do you have the standard **research**-related PPE (Personal Protective Equipment) to conduct your planned studies?

yes       no       not required

b) Do non-research cloth face coverings cause a safety concern if worn in the laboratory or shared spaces?

yes       no       not required

If yes, please discuss: [Click or tap here to enter text.](#)

*e.g. Cloth face coverings are not a substitute for properly indicated PPE. Face masks, respirators, or surgical masks should be used where so indicated by the nature of the work. Nor should cloth facemasks be worn if they present a specific hazard to the wearer, e.g. fire hazard while working with open flames, or a physical hazard while working close to moving pieces of machinery.*

#### **D) Personal Hygiene**

**For all research spaces, adequate hand washing and/or hand sanitizing supplies will be available in the research areas?**  yes

#### **E) Strategy for disinfection**

*The EPA has a list of approved disinfectants for use against COVID-19 (<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>) including: 1) **70% Ethanol**, apply and maintain wet for 5 minutes. Ensure wet contact time is accomplished as ethanol evaporates; 2) **10% Bleach**, make fresh daily, apply and maintain wet for 10 minutes. Ensure use is within 24 hours after making solution; 3) **Sani-Cloth® Germicidal Disposable Cloth**, apply and maintain wet for 3 minutes, dispose of wipe appropriately; 4) **Cavicide™**, ready to use within the expiration date, apply and maintain wet for 3 minutes.*

*A plan with disinfectant strategies and preparation that includes instructions on how to mix, store and use the disinfectant appropriately (including proper PPE when using, e.g. safety glasses, chemical-compatible gloves) is required for the laboratory. Helpful information can be found on the product label. Pay attention to disinfectant contact times, also listed on the EPA-approved list. Do not assume that a disinfectant works on contact. Reference the Safety Data Sheet (SDS) for further information on PPE or any other hazard information. Contact Environmental Health and Safety (EHS) at any time with questions. (517) 355-0153 or [ehs@msu.edu](mailto:ehs@msu.edu). For additional guidance on disinfectant choice please see: or <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>*

- 1. What areas in the main laboratory/research area will be disinfected? What disinfectants will be used? In addition to disinfecting the area at the beginning and end of the day, will the area be disinfected before and after use?**

*e.g., lab benches, door handles, light switches, stools, chairs, desks, printers, etc.; remove high-touch items like common pens, etc.*

We will use 70% ethanol, TB-cide, 10% bleach and Sani-Cloth as disinfectants. Each researcher will be required to perform daily cleaning of individual bench as well as handles for drawers once at the beginning of the day and once at the end of the day.

*For each disinfectant, please make sure there is sufficient contact time.*

*1) **70% Ethanol**, apply and maintain wet for 5 minutes. Ensure wet contact time is accomplished as ethanol evaporates; 2) **10% Bleach**, make fresh daily, apply and maintain*

wet for 10 minutes. Ensure use is within 24 hours after making solution; 3) **Sani-Cloth®** Germicidal Disposable Cloth, apply and maintain wet for 3 minutes, dispose of wipe appropriately; 4) **TB-cide**, apply and maintain wet for 10 minutes.

2. **What areas in the shared spaces that will be disinfected? What disinfectants will be used? In addition to disinfecting the area at the beginning and end of the day, will the area be disinfected before and after use?**

*e.g., lab benches, door handles, light switches, stools, chairs, desks, printers, etc.;*  
*remove high-touch items like common pens, etc*

We will use 70% ethanol, TB-cide, 10% bleach or Sani-Cloth as disinfectants. The door handle of lab doors, lab sink faucets will be cleaned twice daily. A rotation schedule has been developed for group members to take turn for cleaning of shared space such as light switches.

*For each disinfectant, please make sure there is sufficient contact time.*

*1) 70% Ethanol, apply and maintain wet for 5 minutes. Ensure wet contact time is accomplished as ethanol evaporates; 2) 10% Bleach, make fresh daily, apply and maintain wet for 10 minutes. Ensure use is within 24 hours after making solution; 3) Sani-Cloth® Germicidal Disposable Cloth, apply and maintain wet for 3 minutes, dispose of wipe appropriately; 4) TB-cide, apply and maintain wet for 10 minutes.*

3. **What disinfectant(s) will be used to clean shared equipment? What specific equipment components will be disinfected before and after use: e.g., keyboard, equipment handles, eyepiece of microscope, touch pads, etc.; remove high-touch items like common pens, etc...**

We will use 70% ethanol, TB-cide, 10% bleach or Sani-Cloth as disinfectants. Each common equipment such as balance and rotavapors should be wiped clean before and after usage. In addition, a rotation schedule will be developed for lab members to perform daily cleaning of the equipment if it is being used.

*For each disinfectant, please make sure there is sufficient contact time.*

*1) 70% Ethanol, apply and maintain wet for 5 minutes. Ensure wet contact time is accomplished as ethanol evaporates; 2) 10% Bleach, make fresh daily, apply and maintain wet for 10 minutes. Ensure use is within 24 hours after making solution; 3) Sani-Cloth® Germicidal Disposable Cloth, apply and maintain wet for 3 minutes, dispose of wipe appropriately; 4) TB-cide, apply and maintain wet for 10 minutes.*

4. **SOPs (standard operating procedures) that include the disinfectant instructions above (and how to prepare the disinfectant and any PPE required for its use) are posted/available in the research areas and by the equipment to be disinfected.**

See: <https://ehs.msu.edu/assets/docs/covid-19-cleaning-nonhealthcare.pdf>

yes  no

5. **Additional comments:** Click or tap here to enter text.

**F) Core Facilities Required:** (e.g., RTSF, Flow Cytometry Core, Imaging Core, Animal Facilities)

<u>Facilities needed</u>	<u># samples or time/week</u> (e.g. 3 hrs 2X/week)
NMR	0.5 hour 36 x/week
RTSF TEM	1 sample / week
RTSF MS core	1 hour 18x / week

**G) Training/Communication**

**I will discuss and document the following training and communications with my laboratory members?**

The required COVID-19 Safe Return to the Laboratory.  
Located at: <https://bit.ly//EHS-4950-SCO>  yes

Training on the changes in building operations during the pandemic  yes

Updated emergency contact list  yes

This laboratory plan and its implementation  yes

Development of frequent virtual work safety meetings to address any concerns and reinforce a commitment to continually improve lab safety as research continues and possibly ramps-up.  yes

**Section V - Additional Considerations:** Click or tap here to enter text.

**ADDITIONAL INFORMATION AND LINKS:**

Access to new/updated COVID-19 related EHS information, FAQs and laboratory signage at: <https://ehs.msu.edu/news/index.html>.

**FORM SUBMISSION**

**This signed form is to be submitted to the Department Chair or Institute Director or School Director, and a copy should be kept by the PI and shared with the laboratory.**

**I certify that by signing and submitting this form, this is an accurate representation of my research and that this document, including its research and safety plans, will be explained to those that work in my laboratory.**



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**Principal Investigator**

**Nov. 11<sup>th</sup>, 2020**  
**Date**

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**Department Chair, School Director or Institute Director  
(or designee)**

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**Date**

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**Associate Dean for Research (or designee)**

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**Date**

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**Environmental Safety and Health/Office of Regulatory Affairs**

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**Date**