PROJECT & LAB SELF-INSPECTION FORM

INSTRUCTIONS:

- *Use this form to complete a self-inspection of your lab and your project bioethics to ensure compliance with iGEM safety and security requirements. Lab self-inspection is recommended on a monthly basis, required at a minimum on a semi-annual basis. Project bioethics should also be checked after any system design choice is applied.*
- *Print the form and complete the inspection by walking through the lab and observing lab activities. For all items marked "No", develop and implement a corrective action plan. Save the inspection with other lab records.*
- *Notes:*
  - *This form is electronically fillable.*
  - *CTI stands for corrected at time of inspection*
  - *N/A stands for not applicable.*

Date of Inspection: _____ **Conducted By:** _____

Building: _____ **Room Number(s):** _____

Principal Investigator: _____ **Department:** _____

#	Item	Yes	No	CTI	N/A	For all items marked "No", write corrective action plan:		
						Corrective Action	Person Responsible	Due Date
SECTION A: LAB SAFETY AND SECURITY								
ADMINISTRATIVE CONTROLS								
Documentation/Training								
1	Lab has knowledge of the iGEM Safety Hub page to access all necessary lab safety-related documents (policies, forms, templates, etc.) **NOTE:** it is recommended that the page be bookmarked by lab members. https://2019.igem.org/Safety/Working_Safely	☐	☐	☐	☐			
2	Training documentation is present in the lab or other accessible location: ● Required: Lab Safety 101, Right-to-Know, iGEM Safety and Security Policies ● Process-specific: General Biosafety , Bloodborne Pathogens, Recombinant DNA, Using Chemical Inventory, and Fire Safety , Receipt of Hazardous Materials or others as appropriate. **NOTE**: Consider using tools provided by the iGEM Security Hub according to your project's needs.	☐	☐	☐	☐			

3	Lab has up-to-date biosafety approval(s)	☐	☐	☐	☐			
4	Teams must be in full compliance with iGEM's safety and security policies. https://2019.igem.org/Safety/Policies	☐	☐	☐	☐			
5	Teams must follow all relevant international, regional, national, local or institutional laws, rules, regulations or policies on biosafety and bioethics.	☐	☐	☐	☐			
6	Teams must use the iGEM Safety and Security Form to provide information on any risks from their project and steps taken to manage them https://2019.igem.org/Safety/Final_Safety_Form	☐	☐	☐	☐			
7	The Instructor or Primary Contact must sign off Safety and Security Forms and animal use request forms (see below).	☐	☐	☐	☐			
8	All deadlines set by the iGEM Foundation for providing safety and security information must be met.							
9	Teams must follow iGEM shipment requirements when submitting samples. https://parts.igem.org/DNA_Submission#Submission_Requirements							
10	Lab maintains an inventory log for Select Agent Toxins in Exempt Quantities and/or Controlled Substances according to the appropriate guidelines.	☐	☐	☐	☐			
11	Lab uses specialized personnel to ship dangerous goods for them. Dangerous goods include but are not limited to hazardous chemicals, radioactive material, infectious/potentially infectious materials, dry ice, and genetically modified organisms/microorganisms.	☐	☐	☐	☐			
Signage/Lab Postings								
12	Doors leading into the lab are labeled with appropriate hazard symbols (biohazard, radiation, NFPA diamond, etc.).	☐	☐	☐	☐			
13	The following are posted near the lab entrance: ● Emergency Contact Card with current contact info ● Chemical Inventory ● Emergency Procedures Information Sign	☐	☐	☐	☐			

14	Lab equipment used to manipulate biological materials is labeled with the biohazard symbol.	☐	☐	☐	☐			
15	Lab freezers and refrigerators are labeled with "No Food or Drink Allowed", "No Flammables" (if appropriate) and the biohazard symbol (if used to store biological/infectious material).	☐	☐	☐	☐			
ENGINEERING CONTROLS								
Cabinet/ Hood Certification								
16	Chemical Fume Hoods (CFH) have been certified in the past 6 months by the institution's approved vendor and are functioning properly. The certification label is attached to the CFH.	☐	☐	☐	☐			
17	CFHs that have failed certification, have not been certified within the past 6 months or are not functioning correctly (i.e., flow is not between 80-120 LFM) are tagged out of service and are not in use.	☐	☐	☐	☐			
18	Biosafety Cabinets (BSC) have been certified in the past year by the institution's approved vendor and are functioning properly. The certification label is attached to the BSC.	☐	☐	☐	☐			
19	BSCs that have failed certification or have not been certified within the past year are tagged out of service and are not in use.	☐	☐	☐	☐			
20	All active laminar flow hoods/clean benches have been certified within the past year by the institution's approved vendor and are functioning properly. The certification label is attached and initialed by the vendor.	☐	☐	☐	☐			
Cabinet/Hood Use								
21	CFH and BSC sashes are functioning properly, set to appropriate heights, not cracked, and alarms are not muted.	☐	☐	☐	☐			
22	Items are not stored on top of the BSC.	☐	☐	☐	☐			
23	Bunsen burners and/or open flames are not used in the BSC. Flammable gas is not used or connected to BSC gas lines (i.e., natural gas).	☐	☐	☐	☐			
24	Items stored in CFHs and BSCs do not disrupt normal use and/or airflow. Specifically, BSC grills are free from obstructions.	☐	☐	☐	☐			

25	Laminar flow hoods/clean benches are not used to work with hazardous material.	☐	☐	☐	☐			
Centrifuges								
26	Centrifuges have door interlocks (mechanism to keep lid closed during operation).	☐	☐	☐	☐			
27	Secondary containment (i.e., centrifuge safety caps, buckets, sealed rotors) is available and used when centrifuging infectious samples.	☐	☐	☐	☐			
Emergency Equipment								
28	A double ocular eyewash is available within 10 second access.	☐	☐	☐	☐			
29	A safety shower is available within 10 second access.	☐	☐	☐	☐			
30	Eyewashes and safety showers are free of obstruction for easy access during an emergency.	☐	☐	☐	☐			
31	Eyewashes are tested weekly by lab members and the test is documented. **NOTE**: Eyewashes equipped with safety caps have them in place.	☐	☐	☐	☐			
32	Safety showers are tested annually by GT Facilities and the test is documented.	☐	☐	☐	☐			
33	Fire extinguishers are appropriate for the hazards in the lab, visible and accessible in the lab.	☐	☐	☐	☐			
34	Fire extinguishers are visually inspected monthly by lab members. This is documented on the tag affixed to the equipment.	☐	☐	☐	☐			
PERSONAL PROTECTIVE EQUIPMENT & LAB ATTIRE								
35	Lab coats are worn while working in the lab.	☐	☐	☐	☐			
36	Reusable coats are laundered on a regular basis by an approved method.	☐	☐	☐	☐			
37	Safety glasses/goggles or another type of face protection are worn at all times in the lab.	☐	☐	☐	☐			
38	Gloves are worn while working in the lab and appropriate for the experiment (examples: thermal protection for -80°C freezers/liquid nitrogen, nitrile gloves for chemicals, etc.) Disposable gloves are not reused.	☐	☐	☐	☐			
39	Lab members remove gloves before leaving the lab and opening doors.	☐	☐	☐	☐			
40	Closed toed shoes and long pants/skirts are worn at all times in the lab.	☐	☐	☐	☐			

	Examples of inappropriate attire include: sandals, torn jeans, and ballet flats.							
HAZARDOUS MATERIAL STORAGE								
41	NFPA/Right-To-Know compliant labels are affixed to in house made containers of solutions.	☐	☐	☐	☐			
Chemicals								
42	Labels are present on all primary chemical containers (including gas cylinders).	☐	☐	☐	☐			
43	Chemicals are segregated by hazard (i.e., acids and bases separated; acids are segregated by type: inorganic and organic).	☐	☐	☐	☐			
44	Hazardous liquids are stored no higher than shoulder height.	☐	☐	☐	☐			
45	Chemical containers are in good condition (i.e., no bulging, leaking, cracked caps or crystal formation).	☐	☐	☐	☐			
46	Secondary containment is present for all hazardous liquids. **Note:** squirt bottles and working solutions (i.e., flasks beakers, etc.) are exempt from this requirement.	☐	☐	☐	☐			
47	Lab members extract chemicals from one stock container until the container is empty.	☐	☐	☐	☐			
Flammables								
48	Flammables are stored in flammable safety cabinets when not in use.	☐	☐	☐	☐			
49	Flammable materials are limited to 10 gallons/100 ft^2 of lab space.	☐	☐	☐	☐			
50	Flammables are stored in flammable safe or explosion proof refrigerators/freezers as necessary.	☐	☐	☐	☐			
Compressed Gases								
51	Gas cylinders are secured between the middle and shoulder of cylinder. **NOTE**: No more than two gas cylinders are secured with on restraint.	☐	☐	☐	☐			
52	Gas cylinders without a regulator attached have safety caps in place.	☐	☐	☐	☐			
53	Toxic or flammable gases present in the lab are compliant with the institution's policies.	☐	☐	☐	☐			
WASTE MANAGEMENT								
Sharps								

54	Unprotected sharps are not left unattended, lying out on bench tops.	☐	☐	☐	☐			
55	Disposable sharps are properly disposed of in hard walled sharps container labeled with the principal investigator's name and containers are no greater than ¾ full.	☐	☐	☐	☐			
56	Needles are not bent, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal.	☐	☐	☐	☐			
Broken Glass								
57	Broken glass containers with plastic liners are available and no greater than ¾ full. Lab does not use broken glass containers for the disposal of sharps, biohazard-contaminated glass, gloves, used bulbs, etc.	☐	☐	☐	☐			
Chemical Waste								
58	Chemical Waste is stored in an easily accessible location.	☐	☐	☐	☐			
59	Chemical waste is properly labeled with a description of the contents, fill start date and owner's name.	☐	☐	☐	☐			
60	Chemical waste is stored in compatible containers (i.e., no acid in metal, no HF in glass, etc.).	☐	☐	☐	☐			
61	Chemical disposal containers are closed when not in use.	☐	☐	☐	☐			
62	Liquid chemical waste is in secondary containment.	☐	☐	☐	☐			
Biological Waste								
63	Animal carcasses are double bagged in biohazard bags and refrigerated/frozen until pick-up by biological waste management .	☐	☐	☐	☐			
64	Solid, non-sharp, biological waste is disposed of in biomedical waste boxes lined with biohazard bags. These are packed for biological waste management pick up.	☐	☐	☐	☐			
65	Liquid biological waste is labeled appropriately and disinfected prior to disposal down the drain using the chemical disinfectant and contact time indicated on the lab's Biological Hygiene Plan.	☐	☐	☐	☐			
Electrical Safety								
66	Electrical panels are unobstructed (i.e., 3 ft of clearance in front of panels).	☐	☐	☐	☐			

67	Ignition sources are segregated from flammables/combustibles.	☐	☐	☐	☐			
68	Permanent equipment is plugged directly into an outlet (no extension cords).	☐	☐	☐	☐			
69	Electrical cords are not frayed or damaged.	☐	☐	☐	☐			
EMERGENCY PREPAREDNESS								
70	Lab is equipped with a spill kit.	☐	☐	☐	☐			
71	Lab members have been trained on how to clean up a minor spill.	☐	☐	☐	☐			
72	Lab members know how to report incidents and injuries.	☐	☐	☐	☐			
HOUSEKEEPING								
73	Lab sinks are equipped with soap and paper towels for handwashing.	☐	☐	☐	☐			
74	Lab floor, bench tops and furniture are easily cleanable (i.e., can be wiped down) and can handle the anticipated loads.	☐	☐	☐	☐			
75	Lab is under restricted access (i.e., doors are lockable, doors are kept closed).	☐	☐	☐	☐			
76	Food/drinks/cosmetics/lotions are not present in the lab.	☐	☐	☐	☐			
77	Work surfaces are disinfected with or an appropriate disinfectant after each use and are visibly clean. Bench papers are changed on a regular basis.	☐	☐	☐	☐			
78	Work surfaces and aisle ways are uncluttered to allow space for safe work practices.	☐	☐	☐	☐			
79	Items are not stored within 18” of the ceiling to allow for safe function of building sprinkler systems.	☐	☐	☐	☐			

SECTION B: BIOETHICS AND HUMAN PRACTICES								
PROJECT DESIGN								
Choice of chassis/organism for experimentation								
P1	The organism used as a chassis should be on the iGEM White List. Whole organisms from Risk Group 3 and 4 are prohibited. https://2019.igem.org/Safety/White_List	☐	☐	☐	☐			
P2	In the case that the chassis organism is not contained in the White List, the team should use the Check-In form, found here: https://2019.igem.org/Safety/Check_In	☐	☐	☐	☐			

P3	In case that the team wants to use multicellular organisms not on the White List for testing, among them vertebrates and some invertebrates, a Check-in form and an Animal Use form must be submitted beforehand.	☐	☐	☐	☐			
P4	Teams should not release or deploy any genetically modified organisms, or the products of genetically modified organisms, outside the lab.	☐	☐	☐	☐			
P5	Team does not plan to use human subjects (including team members) for experimentation.	☐	☐	☐	☐			
P6	Engineered organisms you make, or their products, should not come into direct contact with humans.	☐	☐	☐	☐			
P7	Samples from humans (swabs, feces, blood, etc.) can be used but their use must comply with both institutional/national rules and iGEM's safety and security rules and policies. A Check-In form is required.	☐	☐	☐	☐			
P8	Samples from vulnerable populations (such as minors/children, prisoners, pregnant women or fetuses) should be avoided	☐	☐	☐	☐			
Choice of genetic parts								
P9	The genetic parts used should be on the iGEM White List, which includes any part that does not have a Red Flag. A list with parts bearing a Red Flag can be found in the link below. These parts require a Check-In form. http://parts.igem.org/Special:WhatLinksHere/Template:SafetyFlag	☐	☐	☐	☐			
P10	Any part from a Risk Group 3 organism, regardless of its function, must be Checked-in. Risk Group 4 parts are prohibited from being used. Teams are advised to find a substitute in both cases.	☐	☐	☐	☐			
P11	Any gene from a human or animal viral pathogen or toxin-coding listed by the Australia group (australiagroup.net) must be Checked-In	☐	☐	☐	☐			
P12	Any gene which could endow or enhance pathogenicity, or in itself or through its transcribed or translated products, represent a significant hazard to health from a human or animal bacterial or fungal pathogen or a plant pathogen	☐	☐	☐	☐			

	listed by the Australia group must be Checked-In							
P13	Non-protein-coding parts that target human genes (CRISPR gRNAs, miRNAs,siRNAs, shRNAs etc) or are not listed in the White List must be Checked-In	☐	☐	☐	☐			
P14	Prions from mammals, such as human PrP must be Checked-In	☐	☐	☐	☐			
P15	Proteins or protein-coding genes in the following dangerous categoriesmust be checked-in: ● Virulence factors ● Factors that help pathogens evade or shut down the immune system ● Factors that help pathogens halt the host's DNA/RNA replication, transcription, or translation ● Factors that regulate the immune system, such as cytokines and interferons ● Proteins that are toxic to humans ● Enzymes that produce a molecule that is toxic to humans	☐	☐	☐	☐			
P16	Anti-microbial resistance factors against commonly used anti-microbial therapies or the ones listed on World Health Organization's list of Critically Important Antimicrobials (https://www.who.int/foodsafety/areas_work/antimicrobial-resistance/cia) should be checked-in, except the ones that are common research tools	☐	☐	☐	☐			
WET LAB ACTIVITIES								
P17	Teams must work in the biosafety level appropriate for their project. If this is not possible an explanation must be provided in the Safety and Security Form.	☐	☐	☐	☐			
P18	Experiments likely to bias the inheritance frequency of a genetic marker in an organism's progeny, such as through the creation of a gene drive, must be checked-in.	☐	☐	☐	☐			
P19	Experiments likely to render a vaccine ineffective must be checked-in.	☐	☐	☐	☐			
P20	Experiments likely to confer resistance to the World Health Organization's list of Critically Important Antimicrobial must be checked-in.	☐	☐	☐	☐			

P21	Experiments likely to make hazardous biological agents more hazardous, or alter its host-range, must be checked-in	☐	☐	☐	☐			
P22	Experiments likely to result in a novel hazardous biological agent, or confer degradation of, or the ability to damage, important materials (such as electronics, plastics, etc.), must be checked in.	☐	☐	☐	☐			
P23	Experiments likely to enable a hazardous agent (such as pathogens or organisms capable of damaging important materials) to evade common diagnostic or detection tools must be checked in.	☐	☐	☐	☐			
P24	Experiments likely to make a biological agent or toxin more suitable for use as a weapon or for bioterrorism purposes must be checked in.	☐	☐	☐	☐			
HUMAN SUBJECTS RESEARCH (NOT BIOMEDICAL)								
P25	If stated by institutional policies, social science research (such as surveys and data collection from interviews) may require pre-approval from review boards at your local institution, and must comply with national guidelines	☐	☐	☐	☐			
P26	Teams should consult international and national institution and other resources and experts when considering their human practices research							
P27	Teams should preferably anonymise data when publishing human practices work	☐	☐	☐	☐			
P28	Written (or verbal in special cases) informed consent must be provided by participants in social science research							
P29	Teams must be compliant with General Data Protection Regulation (GDPR) in cases of personal data handling							