

iGEM 2013 Basic Safety Form

Team name:

Deadline: 30th of August 2013

Submission method: email form to the correct email list for your region:

safety_forms_asia@igem.org

safety_forms_europe@igem.org

safety_forms_north_america@igem.org

safety_forms_latin_america@igem.org

Students can complete this safety form, but it must be read and signed (electronic or hard copy) by your team's faculty advisor. Your advisor must verify the information contained in this form and sign it.

The iGEM Safety Committee must be able to easily reach the advisor with questions or other follow-up communication. If you have made changes to your project (new coding regions or organisms) you must re-submit your safety form before wiki freeze (date TBD).

Key points to remember as you complete the safety assessment process:

- For help in completing questions 1 and 2, you may find it useful to consult the Risk Groups section of the Safety Resources List [2013.igem.org/Safety].
- The iGEM Safety Committee will be reviewing your project. To avoid temporary suspensions, answer these questions completely and accurately.
- The Safety Committee needs to be able to communicate with your faculty advisor about any safety concerns. If we cannot reach your advisor in a reasonable amount of time, you may be subject to restrictions at the Jamboree.
- Your safety page, wiki project page and poster should be consistent with each other. If you change your project, submit an updated Basic Safety Page to the iGEM Safety Committee before the wiki freeze. (Your faculty advisor must also read and sign the updated page.)
- We understand that projects may still be changing at a late date. However, large discrepancies between what you submit on the Basic Safety Page and what you present at the Jamborees may result in restrictions at the Jamboree.

Basic Safety Questions for iGEM 2013

a. Please describe the chassis organism(s) you will be using for this project. If you will be using more than one chassis organism, provide information on each of them:

	Species	Strain no/name	Risk Group	Risk group source link	Disease risk to humans? If so, which disease?
Ex	<i>E. coli</i> (K 12)	NEB 10 Beta	1	www.absa.org/riskgroups/bacteria/search.php?genus=&species=coli	Yes. May cause irritation to skin, eyes, and respiratory tract, may affect kidneys.
1	<i>E. coli</i> (K 12)	JM109	1	www.absa.org/riskgroups/bacteria/search.php?genus=&species=coli	Yes. May cause respiratory tract, eye and skin irritation. Contains material that may cause target organ damage
2	<i>E. coli</i> (K 12)	S17-1	1	http://www.atcc.org/products/all/47055.aspx	May cause eye irritation, skin irritation, harmful by inhalation, harmful if swallowed
3	<i>E. coli</i> (K 12)	TOP10	1	www.absa.org/riskgroups/bacteria/search.php?genus=&species=coli	May cause eye irritation, skin irritation, harmful by inhalation, harmful if swallowed
4					
5					
6					
7					
8					

*For additional organisms, please include a spreadsheet in your submission.

2. Highest Risk Group Listed:

1 Greater than 1

If you answered 1+, please also complete the iGEM Biosafety form part 2 for any organisms in this category.

3. List and describe *all* new or modified coding regions you will be using in your project. (If you use parts from the 2013 iGEM Distribution without modifying them, you do not need to list those parts.)

	Part number.	Where did you get the physical DNA for this part (which lab, synthesis company, etc)	What species does this part originally come from?	What is the Risk Group of the species?	What is the function of this part, in its parent species?
Ex	BBa_C0040	Synthesized, Blue Heron	Acinetobacter baumannii	2	Confers tetracycline resistance

1	Csy4	Synthesized, Given from Stanley Qi's Lab	E. Coli	1	An Enzyme that cuts a specific cut site in order to create gRNAs
2	GFPi	Synthesized, Given from Stanley Qi's Lab	No Original Species	N/A	A gRNA that lead Cas9 to repress GFP
3	RFPi	Synthesized, Given from Stanley Qi's Lab	No Original Species	N/A	A gRNA that lead Cas9 to repress RFP
4	XylEi	Synthesized using primers	No Original Species	N/A	A gRNA that lead Cas9 to repress XylE
5	LacZi	Synthesized using primers	No Original Species	N/A	A gRNA that lead Cas9 to repress LacZ
6					
7					
8					

*For additional coding regions, please include a spreadsheet in your submission.

4. Do the biological materials used in your lab work pose any of the following risks? Please describe.

a. Risks to the safety and health of team members or others working in the lab?

No, the materials used in our project are not hazardous and do not pose as a safety or health threat toward any of our team members.

b. Risks to the safety and health of the general public, if released by design or by accident?

Our materials will not endanger the health or safety of the general public should it be released by design or accident.

c. Risks to the environment, if released by design or by accident?

There is increased risk of horizontal gene transfer between bacterial strains if conjugation project is released to environment. But, because of specificity of dCAS9, it should not cause harm to unintended targets. It also has an antibiotic resistance cassette, so the plasmid would not function if released.

d. Risks to security through malicious misuse by individuals, groups, or countries?

No, there is no risk to security if the project is place in the wrong hands.

5. If your project moved from a small-scale lab study to become widely used as a commercial/industrial product, what new risks might arise? (Consider the different categories of risks that are listed in parts a-d of the previous question.) Also, what risks might arise if the knowledge you generate or the methods you develop became widely available? (Note: This is meant to be a somewhat open-ended discussion question.)

Our Synthetic Decision Making Circuit could possibly face the risk of resistance from the general public if it were to be used as a commercial/industrial project. The reason being is the possibility that the project would be inserted in plants as a mechanism of defense against pests.

6. Does your project include any design features to address safety risks? (For example: kill switches, auxotrophic chassis, etc.) Note that including such features is not mandatory to participate in iGEM, but many groups choose to include them.

All of our strains are lab strains and any engineered parts are on plasmids that have antibiotics cassettes for selection.

7. What safety training have you received (or plan to receive in the future)? Provide a brief description, and a link to your institution's safety training requirements, if available.

We took a Biological Lab safety training class at UCSF and learned the proper dress code, proper lab technique, how to dispose of hazardous materials, etc. The class was taught by an EH&S safety officer, Hank Mar.

8. Under what biosafety provisions will / do you work?

a. Please provide a link to your institution biosafety guidelines.

The UCSF iGEM Team works under the Biological Use Agreement (BUA) approved by UCSF Health and Safety (EH&S). <http://industry.ucsf.edu/ehs/8046-DSY/version/default/part/4/data/>

b. Does your institution have an Institutional Biosafety Committee, or an equivalent group? If yes, have you discussed your project with them? Describe any concerns they raised with your project, and any changes you made to your project plan based on their review.

Yes, UCSF has a Biosafety Committee (<http://or.ucsf.edu/ehs/7240-DSY/7422-DSY/8777>), but it was not deemed necessary to meet with them regarding our project because all of our work falls under standard laboratory procedures that have prescribed regulations and safety protocols.

c. Does your country have national biosafety regulations or guidelines? If so, please provide a link to these regulations or guidelines if possible.

Yes, the United States has a manual with biosafety guidelines for biological laboratories: <http://www.cdc.gov/biosafety/publications/bmb15/index.htm>

d. According to the WHO Biosafety Manual, what is the BioSafety Level rating of your lab? (Check the summary table on page 3, and the fuller description that starts on page 9.) If your lab does not fit neatly into category 1, 2, 3, or 4, please describe its safety features [see 2013.igem.org/Safety for help].

The iGEM lab is located in the Lim Lab BSL1. The BioSafety Level of our lab is 1.

c. What is the Risk Group of your chassis organism(s), as you stated in question 1? If it does not match the BSL rating of your laboratory, please explain what additional safety measures you are taking.

Our chassis organism is E. Coli and it's risk group is 1. No, we don't need to take any additional safety measures.

Faculty Advisor Name:

Wendell Lim

Faculty Advisor Signature:

A handwritten signature in black ink, appearing to read "Wendell Lim", is written inside a rectangular box.