iGEM 2013 Basic Safety Form

Team name: uOttawa

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	*E. coli* (K 12)	NEB 10 Beta	1	www.absa.org/riskgroups/bacteriasearch.php?genus=&species=coli	Yes. May cause irritation to skin, eyes, and respiratory tract, may affect kidneys.
1	S. cerevisiae	S288C	1	http://or.ucsf.edu/ehs/7240-DSY/10232	No.
2					
3					
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	BBa_K1164000	Dr. David Eide University of Wisconsin-Madison	H.sapiens/herpes simplex virus	2	Estrogen receptor/activation domain
2	BBa_K1164001	E.coli	E.coli	1	Repressor
3	BBa_K1164002	E.coli/Mr. Gene	E.coli/Synthesized	1	Repressor/Fluorescent protein
4	BBa_K1164005	E.coli	E.coli	1	Repressor
5	BBa_K1164006	E.coli/Mr. Gene	E.coli/Synthesized	1	Repressor/Fluorescent protein
6	BBa_K1164007	Dr. Jim Collins Boston University	Aequorea victoria	1	Fluorescent protein
7	BBa_K1164008	Dr. Jim Collins Boston University	Aequorea victoria	1	Fluorescent protein
8	BBa_K1164009	S.cerevisiae	S.cerevisiae	1	Copper-inducible promoter

*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?

Risks to the safety and health of team members and others working in the lab are minimal. All organisms worked with fall into Risk Group 1, which implies unlikeliness of harm for healthy workers and animals.

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

The public is routinely exposed to the strains of yeast and E. coli that we work with in the lab. Our lab yeast strains are used in food and drink production and thus do not post any risk to the general public.

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

The strains we work with and any modified genetic constructs within them pose no risk to the environment. Our genetic network is not designed in such a way that it would result in the production of harmful proteins or molecules of any kind.

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

Since the genetic modifications that we have imparted on a standard, non-pathogenic yeast strain involve solely molecule detection, there is nothing that would lead us to believe that malicious misuse of any kind is possible.

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 project may be applied in many applications of molecule detection. As such, during the design of the project, we chose to work with a model organism that poses essentially no risks to the environment. Yeast is ubiquitous. No risks would arise if the knowledge from the project were disseminated.

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.

Although our organism does not pose any threat to the environment, during the design of the project, the cells were made auxotrophic for histidine, uracil, and methionine. The cells are not viable outside of supplemented conditions.

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.

Team members working in the lab have received training in WHMIS, laboratory safety, biosafety, and autoclave safety. Link: http://www.uottawa.ca/services/ehss/register.htm

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

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

http://www.uottawa.ca/services/ehss/biosafety.htm

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 - the project has been discussed with The Office of Risk Management at uOttawa. Initially, the team had planned to design the network for detection of toxic molecules such as arsenic, lead, copper, cadmium, and mercury. Upon discussion, we chose not to work with arsenic, lead, cadmium, or mercury.

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

http://www.cdc.gov/biosafety/publications/bmbl5/BMBL.pdf

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].

BioSafety Level 3.

e. 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.

Risk Group 1. Our lab is equipped for greater risk than is actually taken in the lab.

Faculty Advisor Name:

Mads Kaern

Faculty Advisor Signature:

Mads Kaern

Digitally signed by Mads Kaern
DN: cn=Mads Kaern, o=University of Ottawa, ou=Faculty of Medicine, email=mkaern@uottawa.ca, c=CA
Date: 2013.08.30 19:34:19 -04'00'