iGEM 2013 Basic Safety Form

Team name: TecMonterrey

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	E. coli (K 12)	Top10	1	http://www.absa.org/riskgroups/bacteriasearch.php?genus=Escherichia http://epa.gov/biotech_rule/pubs/fra/fra004.htm https://tools.invitrogen.com/content/sfs/msds/2011/460700_MTR-NALT_EN.pdf	May cause eye and skin irritation in suceptible persons. Harmful if swallowed and by inhalation.
2	E. coli (K 12)	BL21	1	http://www.absa.org/riskgroups/bacteriasearch.php?genus=Escherichia http://www.york.ac.uk/media/biology/documents/infrastructure/ragmmis.pdf	May cause eye and skin irritation in suceptible persons. Harmful if swallowed and by inhalation. May cause nausea, coughing, headache or diarrhea if ingested.
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_K1166000	Synthesized, Genescript	Atenuated Salmonella	1	Allows transcription under hypoxic conditions
2	BBa_K1166001	Synthesized, Genescript	Escherichia coli	1	Expresses FNR protein for hypoxic regulation
3	BBa_K1166002	Synthesized, Genescript	Uropathogenic Escherichia coli	2	E. coli secretion device
4	BBa_K1166003	Synthesized, Genescript	Human immunodeficiency virus	2	Allows internalization of proteins fused to it into mammalian cells
5	BBa_K1166004	Synthesized, Genescript	Rattus norvegicus	1	Expresses a protein that causes apoptosis in some cancer lines.
6	BBa_K1166005	Synthesized, Genescript	Chicken Anemia Virus	1	Expresses a protein that causes apoptosis in cancer cell lines.
7	BBa_E0040	Synthesized, Genescript	Aequorea victoria	1	Produces GFP
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?

It is important to notice that we are always exposed to risk and no experiment is 100% risk free. Using non-pathogenic strains of common use in laboratory as BL21 and TOP10 lowers the risk level the researcher is exposed to. With good microbiological practices the probability of occurance is negligible.

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

We desing our bacteria to produce its recombinant proteins just under hypoxic conditions and to affect only cancer cell lines, which limits and lowers the possible risks. Also these strains cannot survive outside laboratory conditions for more than two weeks as they are derivated from E.coli K12.

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

One of the proteins produced by our system is from the Chiken Anemia Virus, so the proteins produced by our system may pose a thread to other multicellular organisms different than man itself. But these strains cannot suervive oustide laboratory conditions for more than two weeks.

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

One of our DNA parts, namely BBa_K1166003, permits the internalization of proteins and other kind of bodies like liposomes into mammalian cells. Nevertheless this part has existed and been used by scientists for decades.

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 proyect is not ready to be moved to be used as an industrial product as more research is needed. As it is, our bacterial strains are not suited to be used as a therapy. The use of an auxothrophic dependance and a less allegrenic strain needs to be developed previous to its release.

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.

Our proyect will produce our recombinant proteins only under hypoxic 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.

All the team recieved basic training at the research center of our institute for both laboratories BSL2 and BSL2+.

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

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

Our institution is self-regulated and trains its researchers with biosafety guidelines without a formal online version of them.

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.

An equivalent group at our institution is made up by Dr. Silverio, Dr Rocio Diaz and Dr. Guy A.Cardineau. The latter is part of our advising team so they are already aware of our project. They gave us feedback regarding the mammalian cell lines we were going to use and how we were going to do so.

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.cibiogem.gob.mx/Norm_leyes/Paginas/default.aspx
Click on the "pdf" sings under each different law or agreement to see it.

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].

We are using two labs. One lab is BioSafety Level 2 and the other one is BioSafety Level 2+.

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

Faculty Advisor Name:

Israel Ramírez Alanís

Faculty Advisor Signature: