iGEM 2013 Basic Safety Form

Team name: Heidelberg

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/bacteria search.php?genus=&species=coli	Yes. May cause irritation to skin, eyes, and respiratory tract, may affect kidneys.
1	E. coli (K 12)	TOP10	1	www.absa.org/riskgroups/bacteria search.php?genus=&species=coli	Yes. May cause irritation to skin, eyes, and respiratory tract, may affect kidneys.
2	E. coli (K 12)	DH10β	1	www.absa.org/riskgroups/bacteria search.php?genus=&species=coli	Yes. May cause irritation to skin, eyes, and respiratory tract, may affect kidneys.
3	E. coli (K 12)	DH5α	1	www.absa.org/riskgroups/bacteria search.php?genus=&species=coli	Yes. May cause irritation to skin, eyes, and respiratory tract,
4	E. coli (K 12)	Rosetta-Gami (DE3)	1	www.absa.org/riskgroups/bacteria search.php?genus=&species=coli	Yes. May cause irritation to skin, eyes, and respiratory tract,
5	E. coli (K 12)	MG1655	1	www.absa.org/riskgroups/bacteria search.php?genus=&species=coli	Yes. May cause irritation to skin, eyes, and respiratory tract,
6	E. coli (K 12)	BAP1	1	www.absa.org/riskgroups/bacteria search.php?genus=&species=coli	Yes. May cause irritation to skin, eyes, and respiratory tract,
7	E. coli (K 12)	BL21 (DE3)	1	www.absa.org/riskgroups/bacteria search.php?genus=&species=coli	Yes. May cause irritation to skin, eyes, and respiratory tract,
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	pLF03-plasmid	amplification from genome - strain from Pfeifer-Lab	Streptomyces coelicolor	1	pccB-accA2
2	pKD46-plasmid	amplification from genome - strain from Pfeifer-Lab	Lambda Phage	1	gam, beta, exo
3	pET21c-pcc-acc-mmce-plasmid	Matthew Mattozzi, Wyss Institute for Biol. Insp. Engineering	Streptomyces coelicolor, Chloroflexus sp.	1	pcc-acc-mmce
4	del-Cluster	amplification from genome - strain from DSMZ, Germany	Delftia acidovorans SPH1, Delftia acidovorans DSM39	1	Production of Delftibactin
5	indC	amplification from genome - strain from DSMZ, Germany	Photorhabdus luminescens laumondii TT01	1	Indigoidine Synthetase
6	svp	amplification from genome - strain from DSMZ, Germany	Steptomyces verticillus ATCC15003	1	coding for PPTase
7	sfp	amplification from genome of BAP1	Bacillus subtilis 168	1	coding for PPTase
8	entD	amplification from genome of MG1655	E.coli (K12) MG1655	1	coding for PPTase

*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. None of the peptides we produce or the gene regions we use are linked to safety risks. We anyway always work respecting good laboratory practice (e.g. dispensing of bacterial cultures followed by autoclaving, using gloves, etc.)

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

No. Neither Indigoidine, nor Delftibactin are associated to those risks. The remaining small peptides we produce carry no risk.

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

No. Our project is designed to be environmentally useful, none of the genes/gene products used, nor our chassis-organisms, represent a risk to the environment.

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

No. Usually, short peptides are produced by chemical synthesis - in our project we propose a more efficient alternative to produce those peptides. Hence the safety concerns would be the same as for chemical peptide synthesis.

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.)

We have designed our project to provide everyone with the advantages of NRPSs and thus we have the aim to make our knowledge publicly available. As we do not use any pathogenic genes, also an industrial use is realizable without major risk concerns.

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.

No, the engineered E. coli cells carry no risk of infection and are not meant to be released in the environment. Therefore, we did not implement any suicide switch. D. acidovorans could cause infections and endocarditis, but the Omp21-membrane-protein that is crucial for infection will not be used.

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.

- S1 biosafety level introduction by Dr. Angret Joester, the authorized S1 biosafety representative in BioQuant
- good laboratory practice introduction as well as general lab introduction by Dr. Joester and our advisors

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

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

http://www.sicherheit.uni-hd.de/info.htm
(page is in german; in case you might need a translation, please feel free to contact us)

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.

As preparation for our project, we talked to the safety advisor of the campus, Dr. Willi Siller, and double checked the project with him. He had no concerns regarding our work during iGEM.

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

www.gesetze-im-internet.de/gentsv/index.html
(page is in german; in case you might need a translation, please feel free to contact us)

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].

our lab is rated BioSafety Level 1

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.

Our chassis-organisms are all rated BioSafety level 1.

Faculty Advisor Name:

Dr. Barbara Di Ventura

Faculty Advisor Signature: