

## iGEM 2013 Basic Safety Form

Team name:

Tsinghua-E

**Deadline: 30<sup>th</sup> 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	<a href="http://www.absa.org/riskgroups/bacteria/search.php?genus=&amp;species=coli">www.absa.org/riskgroups/bacteria/search.php?genus=&amp;species=coli</a>	Yes. May cause irritation to skin, eyes, and respiratory tract, may affect kidneys.
1	<i>E. coli</i> (DH5a)	Biomed	1	<a href="http://www.absa.org/riskgroups/bacteria/search.php?genus=&amp;species=coli">www.absa.org/riskgroups/bacteria/search.php?genus=&amp;species=coli</a>	Yes. May cause irritation to skin, eyes, and respiratory tract, may affect kidneys.
2	<i>E. coli</i> (BL21)	Biomed	1	<a href="http://www.absa.org/riskgroups/bacteria/search.php?genus=&amp;species=coli">www.absa.org/riskgroups/bacteria/search.php?genus=&amp;species=coli</a>	Yes. May cause irritation to skin, eyes, and respiratory tract, may affect kidneys.
3	<i>E. coli</i> (JM109)	Biomed	1	<a href="http://www.absa.org/riskgroups/bacteria/search.php?genus=&amp;species=coli">www.absa.org/riskgroups/bacteria/search.php?genus=&amp;species=coli</a>	Yes. May cause irritation to skin, eyes, and respiratory tract, may affect kidneys.
4	<i>E. coli</i> (JW3379)	<i>E. coli</i> Keio Knockout Collection	1	<a href="http://www.absa.org/riskgroups/bacteria/search.php?genus=&amp;species=coli">www.absa.org/riskgroups/bacteria/search.php?genus=&amp;species=coli</a>	Yes. May cause irritation to skin, eyes, and respiratory tract, may affect kidneys.
5	<i>E. coli</i> (JW3995)	<i>E. coli</i> Keio Knockout Collection	1	<a href="http://www.absa.org/riskgroups/bacteria/search.php?genus=&amp;species=coli">www.absa.org/riskgroups/bacteria/search.php?genus=&amp;species=coli</a>	Yes. May cause irritation to skin, eyes, and respiratory tract, may affect kidneys.
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	<i>Acinetobacter baumannii</i>	2	Confers tetracycline resistance

1	pBAD_B0030 _mutD-op_sf GFP	cloned by PCR	E. Coli BL21(DE3)	1	DNA replication
2	pBAD_B0032 _mutD-op_sf GFP	cloned by PCR	E. Coli BL21(DE3)	1	DNA replication
3	pBAD_ori_mu tD-op_sfGFP	cloned by PCR	E. Coli BL21(DE3)	1	DNA replication
4	pTrc99A_pBA D_trp sensor_malQ	cloned by PCR	E. Coli(JW3995)	1	Confer maltose hydrolase activity
5	pTrc99A_trp sensor_B003 0_tetA	synthesized	E. Coli	1	Confer tryptophan dependent gene expression
6	pTrc99A_trp sensor_B003 2_tetA	synthesized	E. Coli	1	Confer tryptophan dependent gene expression
7	pTrc99A_trp sensor_ori_te tA	synthesized	E. Coli	1	Confer tryptophan dependent gene expression
8	pTrc99A_trp sensor_lacZ	synthesized	E. Coli	1	Tryptophan dependent gene expression

\*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?

1. We use ethidium bromide to detect nucleic acids in molecular biology laboratories and it is thought to act as a mutagen because it intercalates double stranded DNA, which indicates that it can be toxic.  
2. E. coli may have little effect on human health.

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

No. E. coli in our lab has nearly no difference with normal innocuous E. coli in nature.

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

No. E. coli in our lab has nearly no difference with normal innocuous E. coli in nature.

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

The leakage of high-rate mutation bacteria may cause a variety of problems to the public and its result might be catastrophic. Unpredictable diseases caused by the bacteria we structured through mutation may lead to disastrous results, though the possibility of this extreme situation is tiny.

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.)

The effect of mutation part may be enlarged to get more kinds of goal strains,so more uncertain factors will be added in.The possibility of new type of bacteria's birth will increase sharply.

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.

Yes.All of bacteria that contain mutation part is auxotrophic.One of special genes of them has been knocked out so they can hardly survive in normal environment.In addition,our part of mutation stimulator will be destroyed in high temperature so as to get rid of spreading

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.

Training of extinguishing and protection,such as the manipulation of fire extinguisher and emergency shower in fire or biohazard.

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

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

[http://www.tsinghua.edu.cn/publish/sbc/202/2010/20101208153448737847778/20101208153448737847778\\_.html](http://www.tsinghua.edu.cn/publish/sbc/202/2010/20101208153448737847778/20101208153448737847778_.html)

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.

We have the committee but the discussion is not necessary because it's a daily work to check the safety.

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.gov.cn/zwggk/2005-05/23/content\\_256.htm](http://www.gov.cn/zwggk/2005-05/23/content_256.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](http://2013.igem.org/Safety) for help].

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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.

Only 1.

Faculty Advisor Name:

Chong Zhang

Faculty Advisor Signature:

