**BIOSAFETY**

**INTRODUCTION:**

Biosafety is the maintenance of safe conditions in biological research to prevent harm to workers, non laboratory organisms and the environment. It is an essential prerequisite for carrying out any project and iGEM also requires all teams to follow a high standard of safe and responsible biological engineering. Hence we abide by all the necessary guidelines, laws and regulations that govern biosafety in research laboratories in our country. The design of these regulations is well within the regulatory ambit of the Cartagena protocol on biosafety for working in labs, which is an international agreement that aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health. A link to the Cartagena Protocol is provided below.

<https://www.cbd.int/doc/legal/cartagena-protocol-en.pdf>

**BIOSAFETY PRACTICES AT SVCE:**

Some of the safety measures that we follow are listed below

Lab coats are worn for the entire duration of our experiments.

Face masks, goggles and gloves are used when required.

Shoes are worn inside the lab.

Long hair is tied back

Food and drinks are not allowed inside the lab

Mouth pipetting is discouraged

Hands are washed with 70% ethanol before and after finishing our lab work

A suitable disinfectant is used to clean the work place.

Petri plates are sealed with parafilm.

Labs are fumigated regularly

All equipment is autoclaved before use

Most glassware and equipment are reused after decontamination

Hazardous chemicals are used only inside a fume hood and under expert supervision

Our laminar hood is a biosafety level 2 cabinet and microorganisms are handled only within this chamber.

Apart from following these safety measures we make sure to adhere to all the lab safety rules that have been formulated by iGEM and these are listed below:

Teams must provide information 'About our Project', 'About our Lab' in the [Safety Form](http://2017.igem.org/Safety/Final_Safety_Form), and complete [Check-In Form](http://2017.igem.org/Safety/Check_In)when using parts and organisms not on the [White List](http://2017.igem.org/Safety/White_List), and have your Instructor or Primary Contact sign off your Safety information. All deadlines for providing this information must be met.

All parts of the safety form have been completed before the deadline

Our chassis organism is E.coli DH5 alpha, which is on the white list and a check in form is not required in this case.

Teams must be in full compliance with iGEM's [safety policies](http://2017.igem.org/Safety/Policies).

No gene drives have been involved in our project

Our project does not involve any anti microbial resistant sequences

We have not used any animal models

None of the risk group 4 organisms have been used

Teams must work in the biosafety level appropriate for their project. If your project involves organisms and parts that can be used safely in a BSL1 lab, you should not work at higher containment levels. If this is not possible an explanation must be provided in the information 'About our Lab' section of the [Safety Form](http://2017.igem.org/Safety/Final_Safety_Form)

The microorganism that we have used for the project is a biosafety level 1 organism, E.coli DH5 alpha

Our institute has well equipped class 1 and class 2 biosafety cabinets within which all microorganisms are handled

Teams cannot conduct work with [Risk Group 3 or 4](http://2017.igem.org/Safety/Risk_Groups) organisms

Our chassis organism E.coli DH5 alpha belongs to Risk Group 1

Teams cannot conduct research in a [Safety Level 3 or 4](http://2017.igem.org/Safety/Risk_Groups) laboratory

Our institute has only biosafety level 1 and level 2 laboratories where all our experiments for the project are conducted.

Teams cannot conduct work with parts from a Risk Group 4 organism

Our chassis organism E.coli DH5 alpha belongs to Risk Group 1

Teams must follow safe shipment guidelines when submitting samples

None of the parts that we are submitting come from organisms on the Australia Group List or the Select Agents and Toxins list

All our parts have been submitted using the standard DNA submission kit

We have not attempted to disguise the nature of our shipment

Teams [cannot release](http://2017.igem.org/Safety/Do_not_Release)or deploy their project outside of the laboratory at any time during the competition or at the Giant Jamboree

Our genetically modified organisms remain within the lab and are sealed and stored in the cold room once the experiments have been completed.

Teams must follow all biosafety rules of their institution and all biosafety laws of their country

We make sure to abide by all the laws and regulations that govern biosafety in research laboratories in our country. A link to these guidelines is provided below

<http://dbtbiosafety.nic.in/guideline/pdf/guidelines_94.pdf>

If you conduct any experiment with human subjects (including non-invasive experiments, such as surveys), you must comply with all rules of your institution/country that govern experiments with human subjects.

We have not conducted any invasive experiments with humans. Among the non invasive experiments, only surveys have been conducted and they adhere to the rules that govern such experiments in India