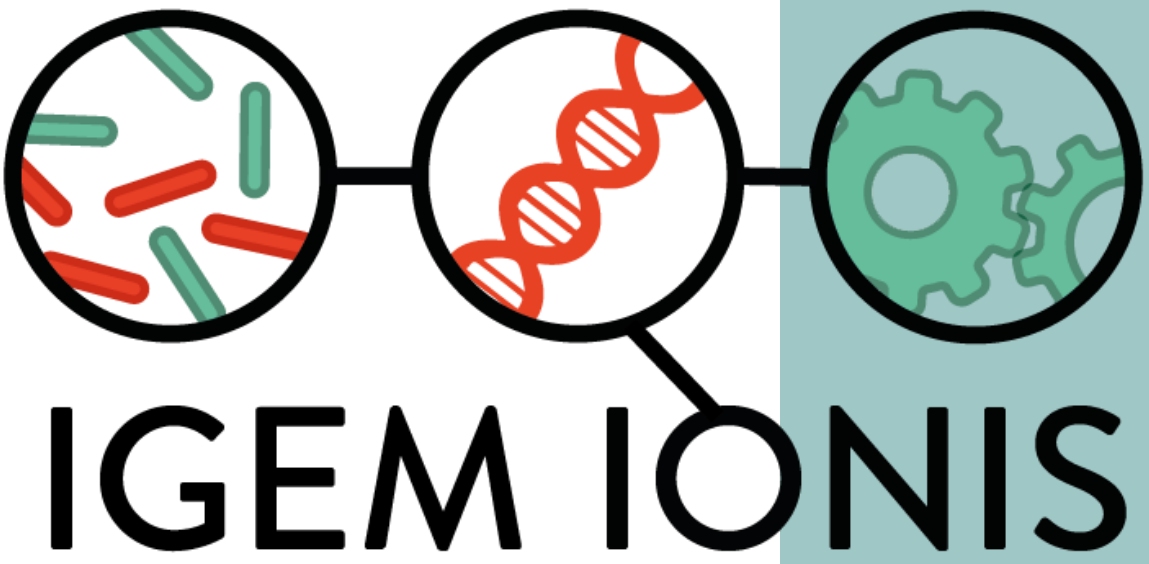
2017

iGEM IONIS project



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iGEM IONIS history

iGEM IONIS is an association (law 1901, SIRET : 82034358000016) created by Sup'Biotech students in 2015 to attend the iGEM competition at the MIT (Massachusetts Institute of Technology) in Boston. Since this first participation, two teams (2015 and 2016) won the gold medal and several nominations: "Best presentation", "Best applied design", and "Best environmental project".

Strong from these 2 previous teams, we formed the 2017 one and officially named it iGEM IONIS. The strength of our team comes from its multidisciplinarity and its complementarity with a strong participation of Sup'Biotech's students but also 2 students from design (E-art Sup) and informatic (Epita) schools.

Sup'Biotech has been training biotechnology engineering students since 2004 with the objective of forming profiles such as R&D, marketing and production engineers in different domains: health, pharmacy, cosmetics, bioinformatics, agro-food sciences and environment. Sup'Biotech belongs to the IONIS education group, as well as Epita and E-artSup.

The iGEM competition takes place since 2004 and this year it is from the 9th to the 13th of November 2017 at the MIT of Boston. This type of competition stimulates creativity and in this case promotes the development of synthetic biology. The goal of the iGEM is to engineer DNA sequences or Biobricks. They will then be introduced into microorganisms such as bacteria, mushroom or yeast through a plasmid which will give them new properties.

Research and discoveries are presented to the jury and the public. The data will then be available for all scientists wishing to reuse them for other applications or research work.

Education investment

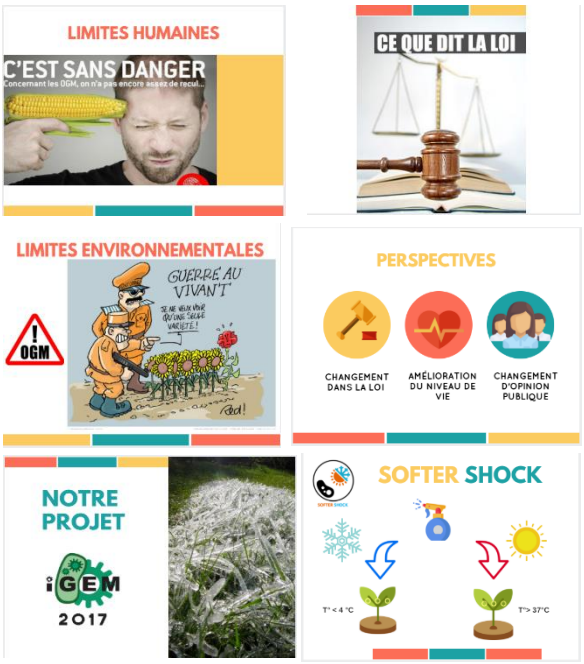
The iGEM competition contains a human practices part that deals with public communication and an ethic reflexion around the project.

I this approach, we decided to make interventions in high schools to promote synthetic biology and our iGEM project.

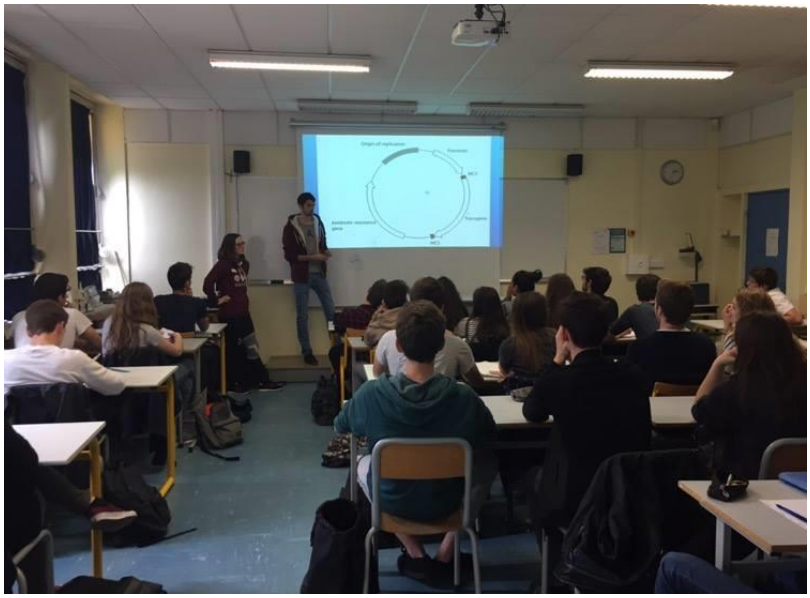
We presented synthetic biology applications (1) in many domains such as: agro-food sector, health and environment. We also presented the human and regulatory limits and our project (2) and in a third part we asked them questions in order to challenge their general knowledge (3).

1)

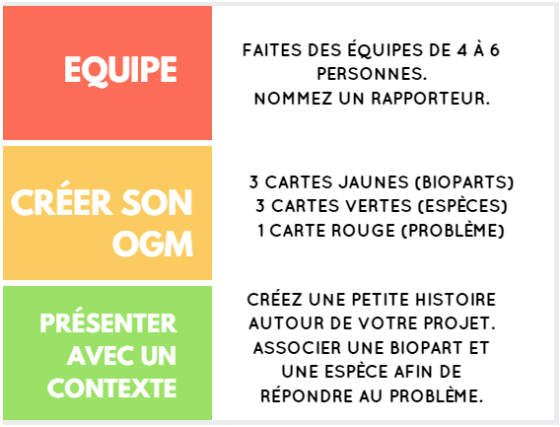
2)



3)

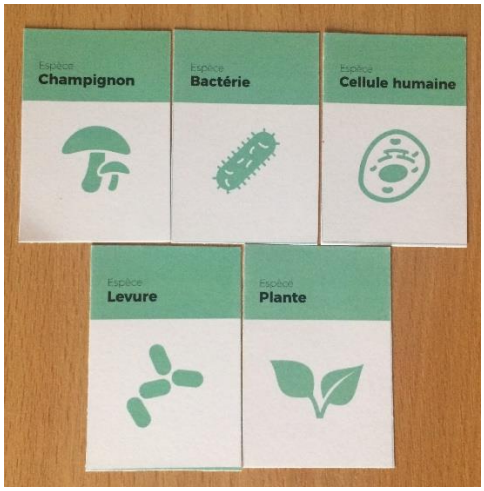


After this presentation, we asked them to play a game and to create their own biological tool to answer a problematic.



To this end, we asked them to form teams of 4-6 people and to draw cards in 3 categories. They had to draw 3 green cards representing organisms (mushroom, bacteria, human cell), 3 yellow cards about a DNA vector to induce a new property to the organism. Finally, 1 red card presenting a problematic to solve, such as healing a genetic disease or produce energy. The purpose was simple: answer to the problematic by giving a new property to an organism.

Below are all the different cards we created:

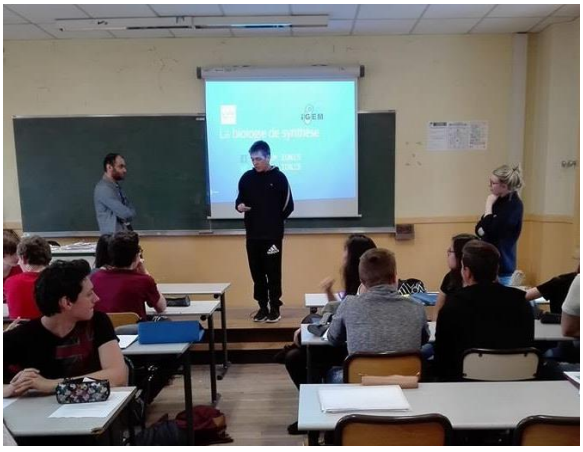


The final step was a quick presentation of their project.

We had the chance to meet creative students and to hear interesting stories such as the following ones:

- “One day I was heading to my friend house. In my way I stopped by a salad field (culture protection as problematic) and found out that snails were eating the salads and letting holes in the vegetables. I thought about a mechanism to repulse the snails and just decided to create a salad (plant as organism) able to produce its own odorous molecule (new property) to prevent the snails from eating it”. – student from the Lycée Evariste Gallois.

- “In my town, light are turned off at 10pm (I know it is a weird town). The administration told me that it was a matter of budget and that if I found a better idea than I just had to submit it. Because I was working in a laboratory, I decided to modify a bacteria (organism) to make it express a luminous molecule (new property) to light up my town at night (problematic).”- student from the Lycée Marcelin Berthelot.



Events performed

- Lycée Alain: 11/05/17 - 1ère S
- Lycée Français de Valencia : 25/05/17 & 26/05/17 - 1ère S
- Lycée Marcelin Berthelot: 24/05/17 & 29/05/17 - 1ère S
- Lycée Evariste Gallois: 08/06/17 - 1ère S
- iGEM week: 8/06/2017 – presentation to 3rd years students
- Fête de la science : 12-13 /10/2017 – presentation to teenagers and students.

Perspectives

We want to continue doing scientific vulgarisation for the iGEM competition. Through our "SofterShock" project this year, our team has sensitized students on the integration and the acceptance of green biotechnologies. For centuries, farmers have improved their crops. Due to climate changes, modern agricultural biotechnology has evolved and now allows farmers to improve their crops in a more targeted way. For all these reasons, we want to continue promoting an innovative and dynamic environment for the agricultural biotech. For us, it is important to share and communicate about synthetic biology and biotechnology.

A partnership could be possible with a company that wishes to communicate about its activity field in exchange of a financial support.

As future perspectives, we engaged ourselves to present synthetic biology and our project to students of Sèvres. We also meet the "maire de Paris " Mrs.Hidalgo to organise events in French schools for children and universities. We will have to prepare further conferences and activities to encourage the society to learn more about sciences, research and biotechnologies.

Actual partnerships

LABORATORY MATERIAL PARTNERS

FINANCIAL PARTNERS