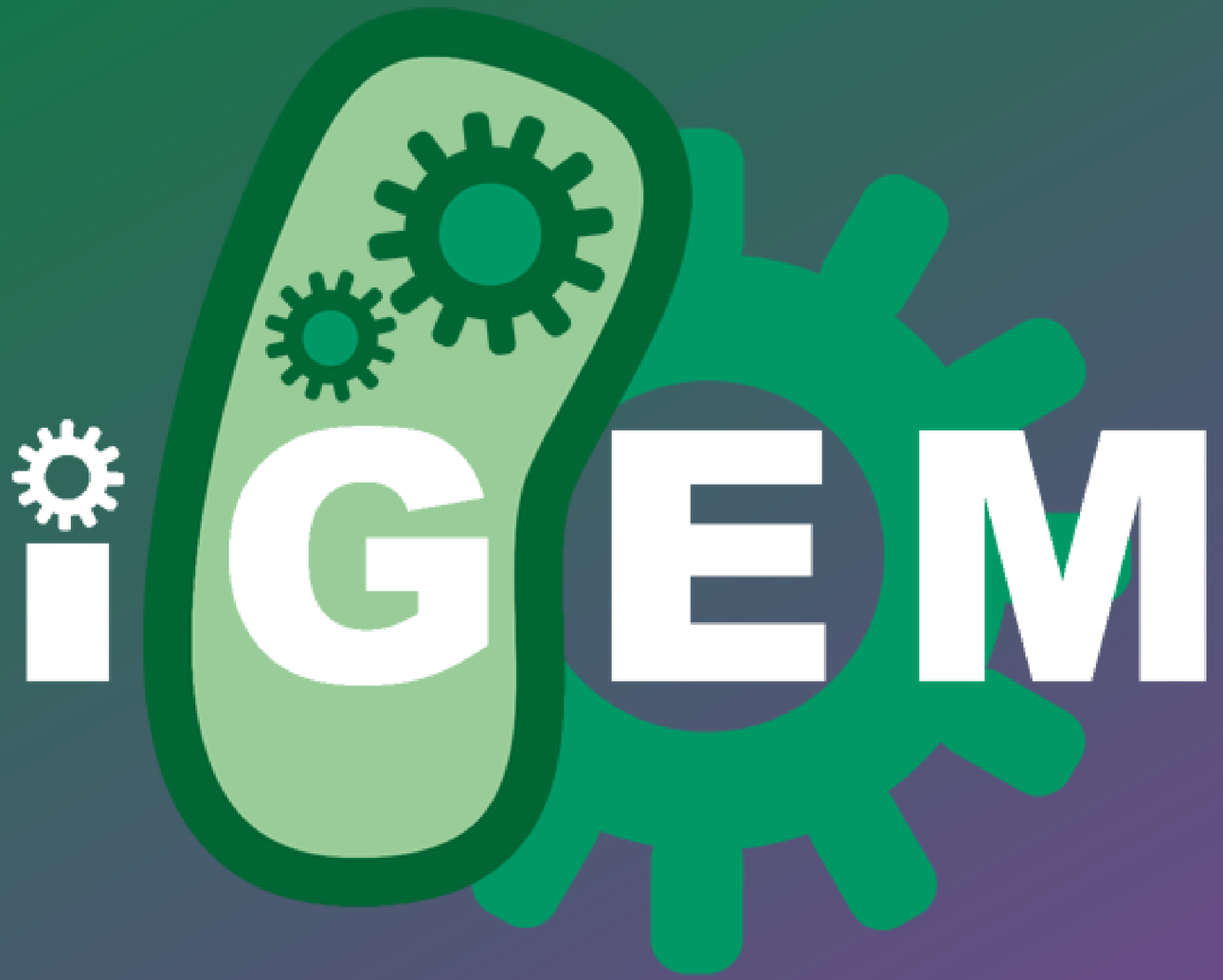
Age	15-18 years approximately	**Number of people**	60 people approximately	**Topic**	Biotecnología y agropecuario
Date					
Purpose	The student is introduced to scientific concepts of synthetic biology and the iGEM competency. They also reinforce this knowledge through a simulation of the iGEM competency in which they must put into practice analytical and creative thinking to solve problems through synthetic biology.	**Time**	120 minutes		
Name of the activity		**Expected learning**			
Mini iGEM		Develops analytical and creative thinking skills to generate integral solutions.			

sequence	**Resources**
Presentation (15 minutes)	
A presentation of synthetic biology concepts and iGEM will be given.	Material visual de apoyo
Mini iGEM (45 minutes)	
A) The tracks and the rubric to be followed to make your proposal will be presented.	Rubric
They will be divided into teams of 4 to 5 people and assigned a track.	
B) Proposal (15 minutes)	
Once the track is defined you will have 45 minutes to choose a problem related to your track, you will have to make use of synthetic biology and you will have to justify why your proposal is a good solution.	Sheets with the questions: What is the importance of probelmatics? What does your solution consist of? What are your stakeholders? What strategies would you implement to make synthetic biology known?
C) Submission of proposals (30 minutes)	
El equipo presentará su propuesta frente a los jueces y se les realizarán 2 preguntas	No material required
D) Awards (10 minutes)	
The team with the best performance will be awarded	Recognition and awards
Farewell and invitation to follow us on social networks (5 minutes)	



INTERNATIONAL GENETICALLY ENGINEERED MACHINE

Tec-Chihuahua

iGEM

- World’s largest international synthetic biology competition organized by the MIT
- Around 300 international teams participate, such as Harvard
- Target: To develop a product based on synthetic biology that allows to improve or solve an especific problem

What is synthetic biology?

- The aplication of science, technology and engeneering to facilitate and accelerate the design, manufacture and/or modification of genetic material in living organisms.
- Cells such as bacteria, fungi, yeasts and viruses are used
- Gene editing is done to obtain biofactories that produce substances of interest

Tec-Chihuahua

Tracks:

Diagnosis

Generate new diagnostic tests for different diseases. Improve current diagnostic tests by making them faster, cheaper and/or more effective. Possible applications: Detection of Covid or other diseases such as cancer

Therapeutic

Generate new therapies or improve existing ones for disease management: Possible applications: Vaccines and nutritional supplements.

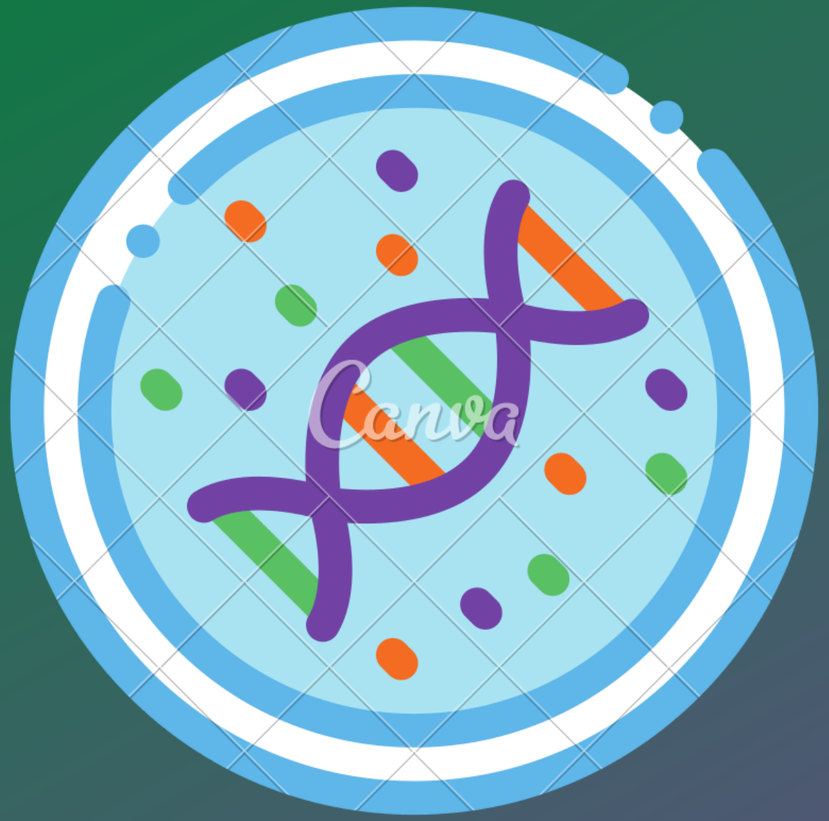
Environment

Improve the quality of water, land and the environment, restore eroded soils or improve the quality of the land. Possible applications: Water, plastic and microplastic urban pollution and antimicrobial resistance.

Nutrition and food sustenance

How to reduce food waste? Possible topics: Local problems affecting farmers, detection and treatment of field diseases and detection of food waste.

Tec-Chihuahua

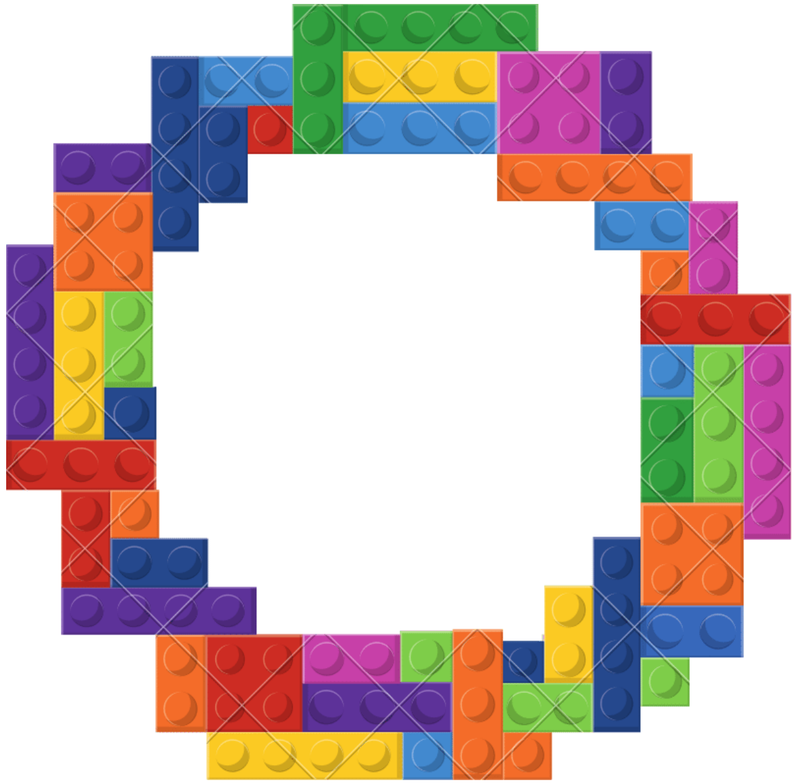


After this what?

- Laboratory
- Model
- Human Practices
- Wiki
- Education and communication
- Entrepreneurship

The time has come to put into practice the research previously done involving genetic engineering and synthetic biology

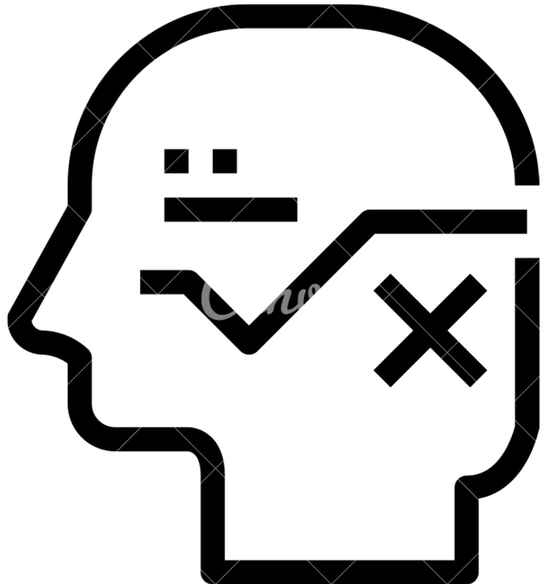
Research and laboratory



Modelo

How are the results going to be measured?
Here we define what ere the equations that allow analyzing factors such as protein indication, results of inhibition, delivery and efficiency, silencing or overexpression of genes, etc.

The model of ordinary differential equations to be used is defined in this step.



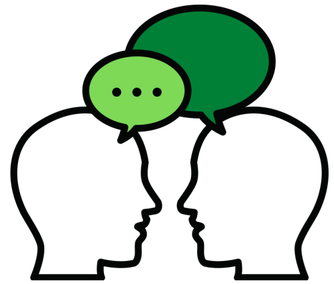
Human Practices

How does your project affect the world?

It is necessary to validate the situation,meet with people who live the problem, talk with experts on the field, see the reaction of people when talking about the possible solution, how feasible and profitable it is?, atend andprioritize the needs of the affected.

Education and communication

Make sure more people are aware of what synthetic biology is, its advantages and its applications. And in turn, to disseminate the competition and the project, generation spaces for dialogue



Wiki

It is the website where all the work done is reflected. It must be described in detail what was done in each of the areas, for what purpose and what the results were.

You must know/learn to program in order to include a visual desing, text, images and videos that will make it easier for the judges to understand everything about the project.

Tec-Chihuahua

Chile producing farmers report losses of up to 100% in chili crops due to wilt.Mexico is the world's leading exporter of chili. Chihuahua is its main producing state, with an amount of 723,000 tons, which is equivalent to 245 billion pesos a year.

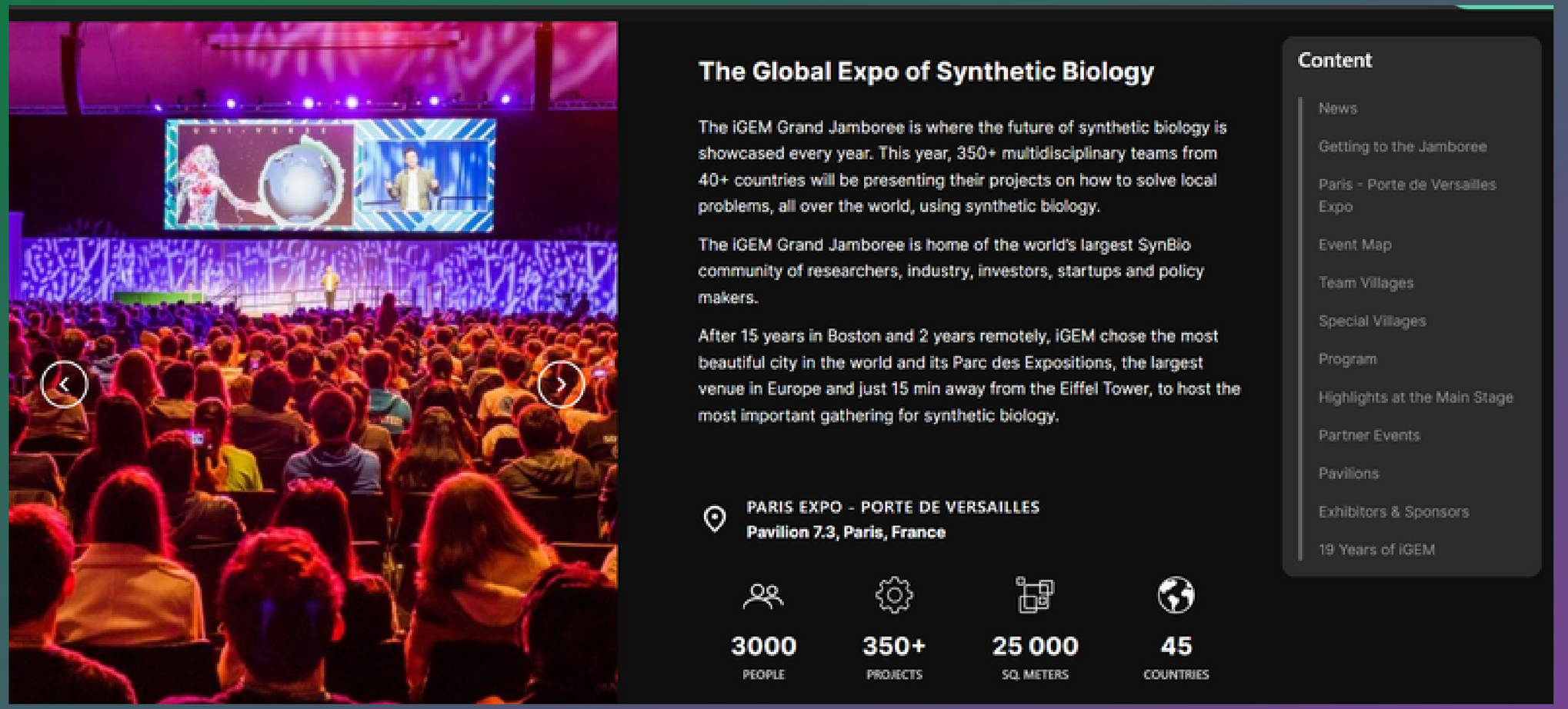
Tec-Chihuahua

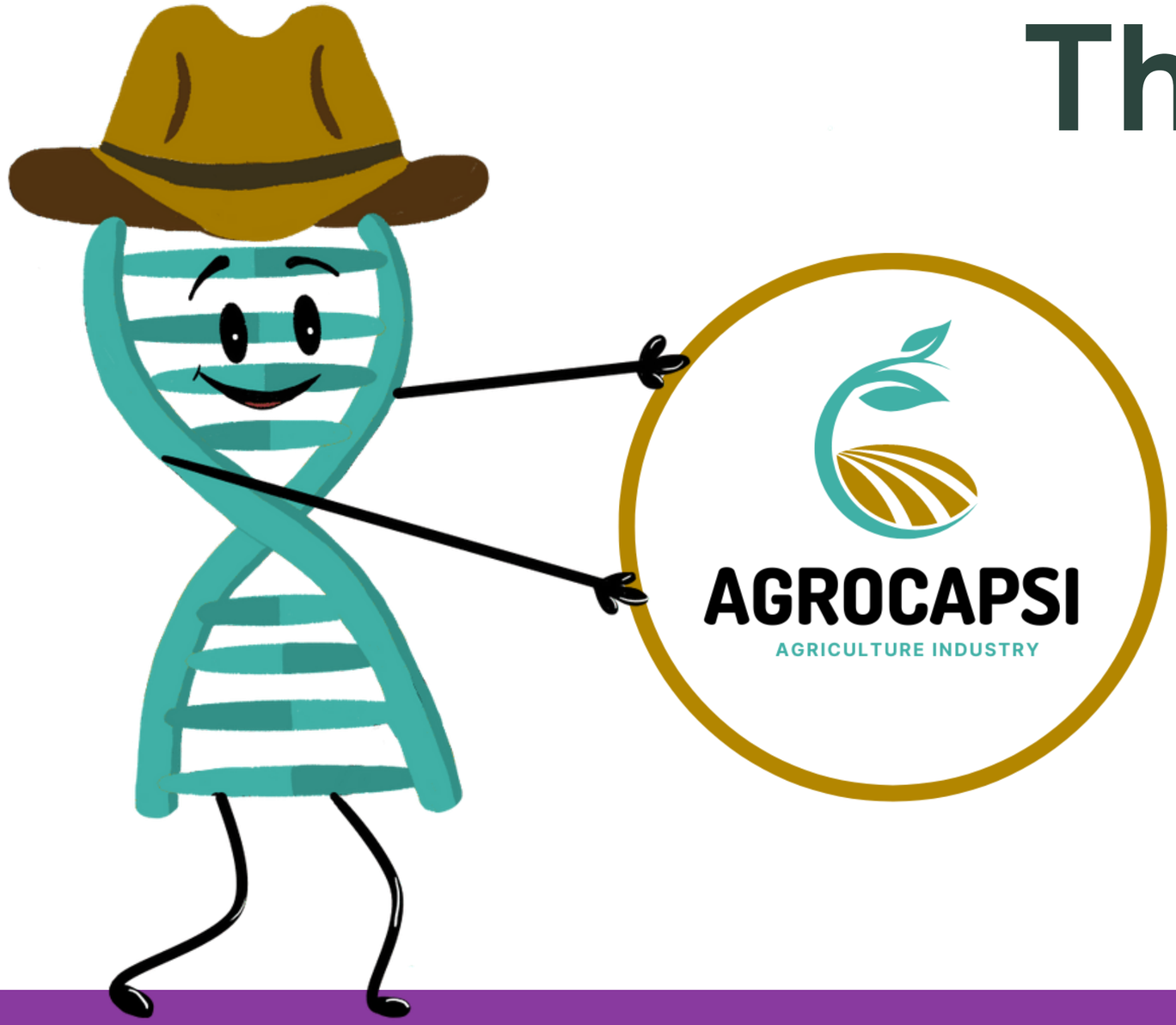
Tec-Chihuahua 2022 is developing a biofungicide that attacks Phytophtora capsici (the oomycete that causes wilting).

Through synthetic biology 2 antimicrobial peptides that weaken the cell membrane of the fungus and an interference RNA responsible for silencing useful genes of the oomycete will be produced.

Your turn!

- Selecct a track
- Research and select a problem you would like to solve.
- Devise a solution, make a work plan by area (Human practices and the scientific part)
- Present your result


The Global Expo of Synthetic Biology
The iGEM Grand Jamboree is where the future of synthetic biology is showcased every year. This year, 350+ multidisciplinary teams from 40+ countries will be presenting their projects on how to solve local problems, all over the world, using synthetic biology.
The iGEM Grand Jamboree is home of the world's largest SynBio community of researchers, industry, investors, startups and policy makers.
After 15 years in Boston and 2 years remotely, iGEM chose the most beautiful city in the world and its Parc des Expositions, the largest venue in Europe and just 15 min away from the Eiffel Tower, to host the most important gathering for synthetic biology.
PARIS EXPO - PORTE DE VERSAILLES
Pavilion 7.3, Paris, France
3000
PEOPLE
350+
PROJECTS
25 000
SQ. METERS
45
COUNTRIES
Content
News
Getting to the Jamboree
Paris - Porte de Versailles Expo
Event Map
Team Villages
Special Villages
Program
Highlights at the Main Stage
Partner Events
Pavilions
Exhibitors & Sponsors
19 Years of iGEM



Thank you all!

igemtecchih

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iGEM Tec-Chihuahua

iGEM Tec-Chihuahua

SOLUTION

Importance of the problem

What is your solution and what would it consist of?

Who are your stakeholders?

What strategies would you do to raise awareness of synthetic biology?

Criterio	Deficient	Okey	Good
Track	A track wasn't selected(5)	A random track was selected(10)	A track was selected according to the desired project (15)
Problem	There was no research for a problematic(15)	There was research and a problematic was found(20)	There was research and a problematic that could be solved with biotechnology and/or synthetic biology was found (25)
Áreas	The work wasn't established by areas (5)	There was work according to the areas (10)	Each area has its own working plan (15)
Laboratory	There was research of current solutions for the problematic(5)	There was research in current treatments and a new solution is briefly described (10)	There was research in current treatments, a new solution is described and they checked the molecule of interest (15)
Human Practices	The stakeholders where defined(5)	Stakeholders where defined and an approachment plan was thought (interviews, events, meetings, etc.) (10)	The last criteria was taken into account and also they investigated the possible activities for education, inclusivity and communication(15)
Wiki	Briefly describes what the page contains(5)	The minimum pages that a wiki should contain are defined(10)	Defines a complete wiki structure (15)
Score			

:

Final Score:_____