Team
Problem

- Prevention of diseases
- Big pandemics
- Is it enough?
Brainstorm

- Limulus Polyphemus
  - Blood contents
  - Extraction of blood
**Project**

- Without hurting any crab
- Easier and cheaper
- Advantages of bacteria usage
**Project**

- Limulus anti-lipopolysaccharide factor (LALF)
- Bacteria vs. bacteria
- Biosensor: Reflectin
Project

Experiments

Outreach
Project

- Signal peptides

SacB  LipA  Tat

- Host organism
  - LALF synthesis

Bacillus subtilis
DID YOU KNOW THAT RAINBOW GRAVEYARD CAN ALSO BE A GRAVE?

Project

- Control Group
- Experimental Group

LALFs

Reflectins

DIFFERENT COLORS!
EXPERIMENTS

Aim

• What did we want to test?

Method

• How did we test it?

Result

• What did we find out?
EXPERIMENTS

Characterization

Exposure Experiment

The Suicide

Existence of Reflectin
Characterization

**Aim**
- To be sure that our parts cloned correctly
- Restriction endonuclease cut & gel electrophoresis
- DNA sequencing

**Method**
- Parts are observed in gel electrophoresis
- Our parts are sequenced properly
- Sequencing of RT-PCR product for LALF
**Assay 1: Exposure**

- The isolated zone in both experiments
- LALF inhibits the gram negative growth
- LALF and SacB signal peptide both work
Assay 2: The Suicide

**Aim**
- To find out if E. coli can inhibit its own growth

**Method**
- Examination of the plates with/without IPTG

**Result**
- Less amount and smaller colonies
- E. Coli inhibited its own growth
- LALF and Tat signal peptide both work
Assay 3: Existence of Reflectin

Aim
• To identify the reflectin production

Method
• Two different plates were prepared
  - E. Coli with/without reflectin

Result
• Observed under the light microscopy
  - Reflectin (+)
• Obvious differences between images
• Transparent points
• Reflectin production
HUMAN PRACTICES

- Safety- sporicide
- Canvas town the Game
- Highschool Division
- Survey
- Collaborations
- Others...

- politics club
- medical conference
- synthetic biology meeting in Turkey
- opinion of medical students
- gifthed children
- visitors of lab
- yasama sanatı
- kindergarthen
- government for synbio
- Fatih Turkey in media
- Canvas Times
**Sporicide**

*B. subtilis* is dangerous when it made an endospore.

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**FENTON REAGENT**

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**Introduction**

**Experiments**

**Outreach**
Canvas Town The Game
Highschool Division

• Ahmet Ulusoy High School
• Nene Hatun High School
• Nevin Gökçek High School

• Samanyolu Serhat High School
• Oncu High School
Survey

Presentations

- I learnt what SynBio is: 80%
- I learnt what BioBrick is: 50%
- I know what plasmid does: 70%
- I know what restriction enzymes do: 60%

Game

- I learnt the devices in the lab: 90%
- I enjoyed the game: 80%
- I learnt what antibiotics do: 70%
- The game is educative: 100%

410 people answered our survey
Fatih Turkey in Media

- The most popular newspapers in Turkey
Collaborations

Bilkent UNAM Turkey

Paris Bettencourt

Michigan
Others...
Achievements

✓ We successfully added 24 new parts to Registry as fully characterized and confirmed.

✓ We identified 6 of our parts as working according to the results of our experiments.

✓ BBa_K541515 is selected as Best New BioBrick, Natural in Europe Jamboree.

✓ Our LALF protein stopped gram negative bacterium growth with success.

✓ The reflectin protein is synthesized by E. coli that is determined after the comparison of colony images.

✓ To obtain a safer lab and avoid the risks of B. subtilis, we produced and used Fenton Reagent solution against bacterial endospores.

✓ We performed 15 different human practice activities to introduce synthetic biology and iGEM to a wide audience. We also did a survey to measure their effectiveness and it supported us that they were found educative and enjoying.

✓ We successfully designed a board-game that teaches the logic of BioBricks and synthetic biology to children and teenagers while having fun.

✓ We encouraged high school students to attend iGEM and three teams from high schools in Ankara are on the way. They are likely to be attending the next competition.

✓ We collaborated with Bilkent UNAM Ankara, Michigan and Paris Bettencourt by exchanging parts, ideas, opinions or lab materials.
Attributions

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