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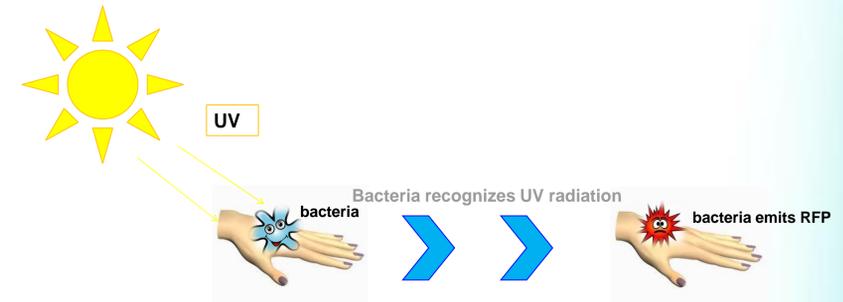
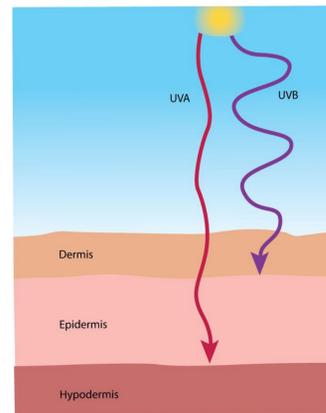
Dimitris Gkontoras Lysimachos Papoutsis

1: Experiment

Using Google Scholar, EBSCO Host and published books and articles found at the Eleutheriadis Library (@Anatolia College) we decided that our final topic would be “To construct a bacteria that recognizes UV radiation and emits RFP in response.”

Reasons we chose such an experiment

Practical	Theoretical
Choose a topic that the genes were in the kit	Greece has a lot of sun exposure throughout the year
Ordering more genes would take too much time	During the summer there is a high risk sunburn
	The phenomenon of ozone depletion leads to higher amounts of UV to enter the atmosphere
	Due to the Greenhouse Effect the temperature is constantly increasing
	These issues are becoming more prominent in many more countries



2: The lab

Before we actually got into the lab we needed to have theoretical background on the topic, so we watched YouTube videos that explained thoroughly procedures. Once we had access to the lab we used the e genes Bba-Jo4450, Bba-I76500I and a connector between them. We used the protocols given by the iGem website, and we tried to give the following result:

3: Problems

Once we finished the theoretical background we went to the lab, but only completed the “Competency Cell Protocol.” One of the major problems the lab were time constraints:

- spring break
- advisor’s absence)
- no access to the main lab whenever it was needed
- exams

Another issue with the experiment was the lack of equipment in the labs.

- no funds to buy these specific tools.

The last problem with the lab was the lack of coordination. most of the members of the team had other responsibilities

4: Applications

This bacteria can take many forms to help us be aware of the amount of UV rays that are present.

One proposed form could be in a bracelet, where the bracelet turns red when the amount of UV rays is above the threshold. These bracelets can be similar to “Sunscreen Bands”; however, it will be using a bacteria instead of a photochromic dye. It could also take a cream or liquid form. This way a person may put it on his skin or on a surface.

The applications for this bacteria collectively is quite simple. Using a technology that has the form of solar panels on top of houses. This can be useful as scientists can warn people if the UV radiation is above the threshold that specific day.

“Sunscreen Bands” Bracelet



5: What we gained

Although the sensor wasn’t built, we participated in a new and unique experience. We also feel that we can organize next year’s team much better now that we have more knowledge on the topic. In addition we learned how to research properly and evaluate which sources are useful.

Additionally we accumulated background knowledge on bacteria and lab procedures. Lastly, we gained experience on how to create posters and presentations.



6: Acknowledgements

We would like to acknowledge the team for its hard work for the creation of the this experiment.

We would also like to acknowledge our advisor who guided us and taught us all the theory we had to know. We’d also like to thank the team leader for organizing such a club at our school. And finally, we’d like to acknowledge Mrs. Kitwa for all her help for the completion of this presentation.

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