Wiki timeline

Who: Georgie, Maggi, and Amy

Description:

- November 2018 – A talk on iGEM took place in undergraduate lectures in order to recruit members for the new year.
- November 30th – Applications for iGEM close.
- Early December 2018 – New members chosen and email sent out with confirmation letter.
- Brew Co. meet up before Christmas.
- 3rd Jan – First video chat with the team, with each person pitching different project ideas.
- 7th Jan- Second video chat.
- 9th Jan – Another video chat.
- 16th Jan – Video chat.
- 19th Jan – Top three project proposals chosen.

28th Jan – First iGEM meeting at university after Christmas break. Organised regular meetings every Monday evening from January to May to continue working on the project and applying for funding during the semester

13th Feb - Had a meeting with Uli Schwarz-Linek to discuss the feasibility of the most popular project idea (monoclonal antibodies). Following this, the antibody project was chosen as the iGEM project for this year.

5th - 7th April

- iGEM retreat- what did we accomplish?

- Created a video that explains our project to the general project using drawings (insert video)

- Applied for funding

- Team bonding

Nerve Agents –

The goal is to create a simple, robust system to detect nerve agents. Current methods used by emergency services can either only detect a small group of

nerve agents or show false positive results for things like petroleum (https://www.ncbi.nlm.nih.gov/books/NBK230668/). Accurate detection of nerve agents is currently only achieved by spectroscopy, which is slow to deploy. The long-term goal of this project is to create something with broad detection and robustness that will make it suitable for first response emergency services.

Why decided against this project?

Antibody –

(Rheumatoid arthritis involves the immune system to stimulate the release of TNF (a cytokine) which stimulates an inflammatory response. Patients with rheumatism have a heightened amount of TNF in their blood and in order to combat this, the TNF production must be repressed by inhibitors. TNF inhibitors are monocolonal antibodies (mAbs) which are currently obtained from animal/human tissue to limit inflammatory response. However, these tissues are expensive to acquire and require high skill in manipulation. An improvement of this would be to genetically modify E.coli to synthesise this specific type of mAbs. Similar processes have been conducted already using E.coli and have appeared successful in producing full length mAbs.1)

Killer Peptide –

Idea 1: We can try to create a DNA sequence which directly encodes this peptide which doesn't need 'improvements' after translation and then insert it into E. coli. That way when the DNA is transcribed, the peptide is going to be released and induce the cell-death pathway, killing off the bacteria within the population. Inserting such modified bacteria, which directly synthetize the killer peptide without the need of stress factors to induce its translation, into a E. coli population will induce the killing of the whole population.

Why decided against this project? Research already completed that solves the problem put forward

SUMMARY

We decided to focus on the monoclonal antibody project as following further research and speaking to academics, it seemed to be the most viable, and if successful, could contribute to improved therapies for a number of diseases.

Funding

- grants we applied for
- when did we register?

Ethical implications? (Ben)

- Researched the ethical implications of our project
- Informed our decision to choose the antibody project

Start of 10 week summer project (add photos)

Organised weekly Monday morning meetings with our supervisors to keep getting feedback on our project and suggestions of improvements.

WEEK 1

3rd June

- Wrote University of St Andrews iGEM constitution (include elsewhere on the wiki?)
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5th June

- Reached out to a member of the medicine faculty (Simon Powis) about the uses of therapeutic antibodies and recent advances (https://www.uptodate.com/contents/overview-of-therapeutic-monoclonal-antibodies)
- Meeting with a member of staff (Clarissa) to discuss the requirements for the wet lab (materials and safety)

6th June

- Reached out to the Edinburgh iGEM teams to organise the Scottish iGEM meet-up
- Modelling team- researched machine learning (to be used to inform the folding of the protein)
    - Python
    - Which programme would be most suitable for the project
- Compiling list of materials and working out our budget

WEEK 2

11th June-

- Reached out to the Edinburgh iGEM teams to organise the Scottish iGEM meet-up
- Voted on our stipends and the trip to Boston for the iGEM Giant Jamboree

12th June

- Meeting with the University Accessibility team- goal to make our wiki more accessible.