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Lab work

In June we continued to work on understanding the characteristics of our enzyme (TdT), by performing various experiments and analyzing them on agarose gels. Nevertheless, as we aim to fine tune the reaction kinetics there is demand for more delicate analyses. Thus, we now focus on establishing capillary electrophoresis and sequencing analyses to get more precise results on our synthesized strands.

Additionally, we are considering multiple different approaches for immobilization of our primers to a polymer matrix, which will be the foundation of our hardware approach.

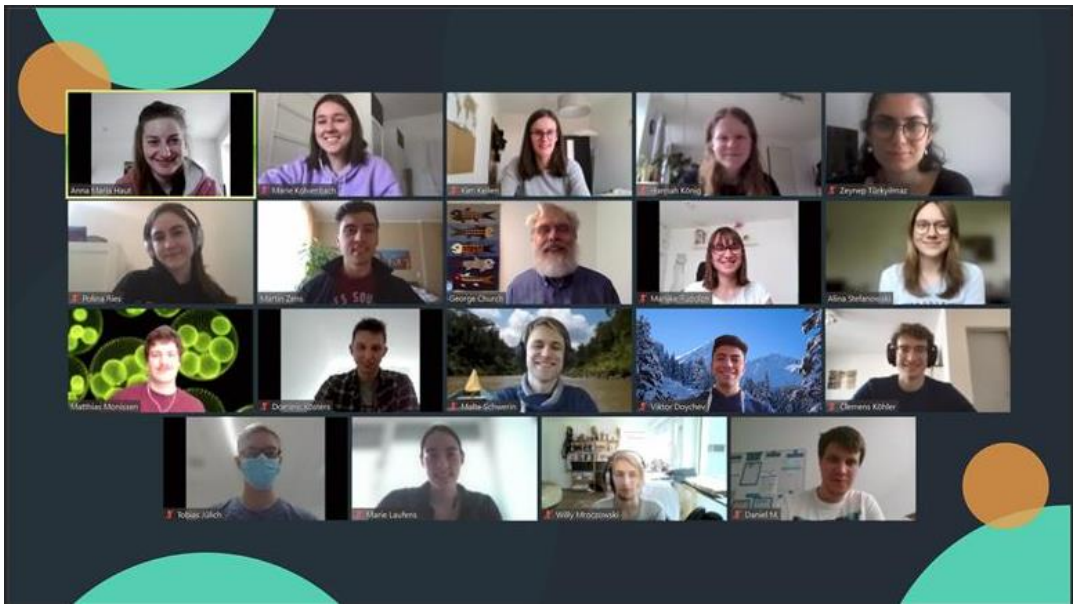
We have made great progress and are now at a point where things get more complicated. Nonetheless, we are eager to face any complications in the lab and make our project come to life!

IT and Wiki

Last month we started to improve our iGEM – Website and began to design and implement our structure for our Wiki. There is still lots of work to do and we are only at the beginning.

Social Media

On social media we presented our lab coats and a 3D animation of the TdT. Moreover, we added new "Facts of the week" on different interesting biological topics and talked about our zoom-meeting with George Church which we were really excited about. If you are interested to know more about us: Follow us on Instagram @igemaachen.



for a better world – for a better future – for a better us

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Modelling

In the past weeks we successfully created a short animation of the TdT with Chimera. Furthermore, we changed our software and planned a few new models. In the next few weeks, we want to model the distribution of strand lengths with help from a reaction network. It all seems to be complex and difficult, but we are truly starting to become experts in modelling!

Hardware

Big changes in this subgroup. After some very important meetings we decided to change our original hardware plan (to build the hardware of George Church and improve it). We will continue to build a machine, which implements the "DIP-method", where we "dip" a material with immobilized primers in different TdT-nucleotid solutions until the synthesis is complete. In the next week we will design a 3D-model to visualize our plan.

Human Practices

As part of science communication, we visited schools in Aachen and Willich to conduct an easy strawberry DNA extraction experiment. Furthermore, we were also warmly welcomed at our local city archive to discuss the opportunities of saving important documents on DNA.

Last week we met Anke Becker and Dominik Heider who are both really invested in researching in Marburg on DNA data storage. It was so exciting to discuss the biological computational aspect of both our projects.

Our most important archievement was probably our Zoom meeting with Harvard Professor and one of the most important researchers in synthetic biology, George Church, who established all the methods for enzymatic DNA synthesis for DNA data storage which we rely on.

He helped us with challenges in the laboratory and we ended our meeting with a philosophic talk about building a sustainable future.

Fundraising

In the past months, we were able to win many supporters and sponsors, who will aid us financially like proRWTH, the "Bügerstiftung" of the city Aachen, the SeSam Gmbh and Enzymaster. Furthermore, we received some material donations from companies like ThermoFisher, Promega, ZymoResearch, IDT and New England Biolabs. We cannot thank you enough for your support! Without you we could not realize our project.

To finance more materials, we will start a crowdfunding campaign soon!

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Design

This month, we finalized and ordered our t-shirts and hoodies! They arrived just in time for the shooting of our promotion video. For that, most of our team came together and many of us saw each other for the first time in person. You will be able to see the finished video in a few weeks. We also ordered stickers with our team and project logos as a memory for us and our sponsors.

Our next big project is the design of our team wiki. For that, we already had an initial kick-off meeting together with the IT & Wiki subgroup. We were able to use a meeting room in the Collective Incubator Pop-up in Aachen, which was a great opportunity for us.