

We are happy our first newsletter has found its way to you! Learn more about the progress of our 2019 iGEM project „A novel approach to Buruli Ulcer diagnostics“ and further plans.

Briefing: What is iGEM?

iGEM stands for international Genetically Engineered Machines competition. It is an annual student competition in which international teams worldwide try to use synthetic biology to solve different issues.

One of the goals is to expand on the large online registry of parts which is held by the MIT in Boston. This registry consists of genetic parts called bio-bricks which may be aligned in a lego-style manner, so as to suit the problem at hand.

Most importantly, despite being a competition, iGEM is about networking, collaborating and exchanging experiences. This renders the event so unique and valuable and is certainly the reason why more and more teams participate each year.

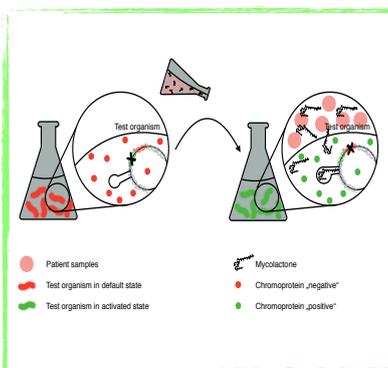


Figure 1: Schematic principle of our diagnostic test.

Our 2019 project

We have decided to work on the improvement of the diagnosis of a skin disease called Buruli Ulcer. This disease is on the World Health Organisation’s List of neglected tropical diseases and affects mainly children in Africa, Asia and Australia.

Briefly, a persistent issue is the reliable diagnosis at the field level, outside of well-equipped laboratories.

Our approach uses a toxin excreted by the causative microorganism, Mycobacterium ulcerans, to diagnose the disease. The presence of the toxin will induce a cascade of reactions in a reporter organisms. We have designed this reporter organism to undergo a visible colour change by incorporating a synthetic genetic circuit.

Monitoring the color of the reporter organism will eventually allow for the diagnosis of the disease in a more resource-efficient and time-saving procedure. The principle is depicted in a schematic way in Figure 1.

Currently, we are working in the lab to implement the design into the reporter organism. See pictures on the next page for some impressions.

Who are we?

We are a diverse group of undergraduate and graduate students from the University of Natural Resources and Life Sciences (BOKU) Vienna and the University of Vienna. Our passion for synthetic biology, its applications and implications for society at large unites us.

With backgrounds in Microbiology, Genetics, Molecular Biology, Biotechnology and Food Science and Technology, we all try to contribute at our best to the success of this year’s project.

Our ultimate goal is the participation in the Giant Jamboree in Boston, Massachusetts, where we will present and defend our outcomes in front of all teams and a jury. Meet us in Figure 2.



Figure 2: Your energetic and curious iGEM 2019 team!

Funding

To realise our project and present it at the Giant Jam-boree, we rely on financial and materialistic support from sponsors.

Costs arise mainly from the registration fee for the competition, laboratory materials and travel costs for members.

At this point, we want to thank all our sponsors who are supporting us - only thanks to your help, we are able to pursue our goals and making the project a success.

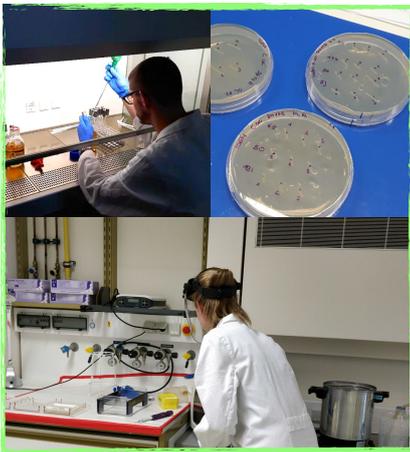


Figure 3: Lab work in progress.

**YOURS, the iGEM 2019
Team Vienna**

Recent Activities

Two months into the competition, we have already been quite active:

- ▶ Draft of genetic switches finalised
- ▶ Project Inspiration published
- ▶ iGEM Erlangen meet-up, poster presentation and networking with other iGEM teams
- ▶ Presentation and cake sales at Muthgassen summer festival (Figure 4)
- ▶ „Kinderuni“ (Childrens' University) to explain synthetic biology and our project to kids, comic (Figure 5)
- ▶ Collaboration with other iGEM teams by exchange of posters
- ▶ Start of laboratory work on cloning and transforming our reporter organism (Figure 3)
- ▶ Role distribution and task division
- ▶ Increased Social Media Appearances
- ▶ First website draft uploaded



Figure 4: Presenting our project at the Muthgassen Fest.

Upcoming Activities

For the next weeks, the following activities will be in our focus:

- ▶ Presentations at potential sponsors
- ▶ Postcard collaboration with 54 other iGEM teams (Figure 5)
- ▶ Interviews with stakeholders in what is called „Human Practices“ to discuss and estimate our project's impact on society
- ▶ And intensive work at the laboratory!

We will also keep you updated on our progress on our social media channels and the team wiki <https://2019.igem.org/Team:BOKU->



Figure 5: Comic and Postcard.

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