GYA working group on Biodiversity for Survival via Biomedicine

Report Activities in Nicosia:

The visit to Nicosia had planned 3 activities:

1) A synthetic Biology *in silico* workshop
2) Participation of the Bio2Bio group at European Researcher's night in Nicosia
3) Attendance of group members to local cultural and policy informing events.

The visit successfully included all of the outlined activities and there was a great interaction between members and the local Nicosia's society. The workshop was delivered to 10 staff and students of the University of Nicosia (See a more detailed description below). The Bio2Bio WG also had a presence at European Researchers night sharing a stand of the University of Nicosia, where members got to speak with the general public about respiratory physiology, air quality and health. In addition, members were able to attend a concert by local famous artist at Nicosia's art centre and Cyprus Forum - *an event bringing together local and foreign political leaders, important figures from the public and the private sector, the media, academia and civic society with the aim of initiating dialogue, exchanging ideas and finding new and creative solutions to key areas of public policy. Event website here:* [*https://cyprusforum.cy/*](https://cyprusforum.cy/)
See pictures below.

Workshop:

Synthetic Biology *in silico*

This workshop was designed to introduce participants to computational tools that enable a better and more reliable design of synthetic biology projects by improving the visualisation of DNA sequences and simulating wet-lab workflows related to cloning, DNA digestion, PCR and protein expression.

Participants of the workshop were introduced to benchling, an on-line, free (for academic research) and user-friendly platform that can be accessed by any student or researcher with a University email account. This platform also enables collaboration between users by allowing the creation and sharing of common projects, files and libraries.

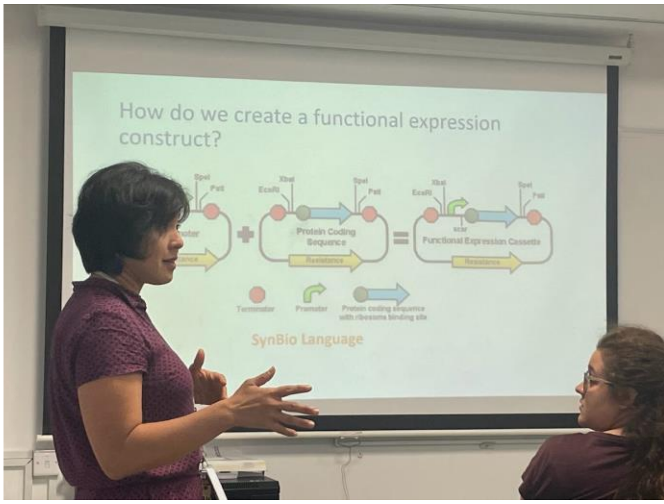
The workshop provided participants with training on the principles of genetic engineering for the biological production of biomolecules of interest, the workflows required on this step and later a hands-on *in silico* design and simulations for the bacterial production of green fluorescent proteins.

The workshop took place at the University of Nicosia, Nicosia, Cyprus on the 28th and 29th of Sept 2022. 10 female workshop participants (University students and staff) received 4 hours in-person and 2 h self-paced training. The theoretical content of the workshop was fully delivered and the participants created accounts of benchling, and learned to search, import, annotate, translate, digest, amplify and clone DNA sequences, and analyse the biochemical characteristics of amino acid sequences.

The workshop was delivered to female participants, as women are underrepresented in the use of bioinformatic tools (See: Women are underrepresented in computational biology: An analysis of the scholarly literature in biology, computer science and computational biology | PLOS Computational Biology). In addition, the material developed for this course will serve as template for a Bioinfomatics course that the Bio2Bio group is aiming to deliver in Kigali, Rwanda, at the time of the AGM, again, giving priority to early career female researchers or graduate students, so that they can advance their research using this tools. Computational biology is key to advance research in low and middle- income countries (LMIC) (See: Bioinformatics and the developing world - PMC).

Additionally, the training afforded to participants will enable them to start designing and thinking about Synthetic Biology as a means to produce solutions to local biological problems. It was also an aim of the course to provide training to possible instructors and members of a future All-Cyprus iGEM team. A team promoting inclusion of Cypriot communities that are currently experiencing a high degree of segregation (See: The Cypriot Roma and the Failure of Education: Anti-Discrimination and Multiculturalism as a Post-accession Challenge | European Website on Integration). The Bio2Bio WG will look for external funding for this project.

Pictures:


How do we create a functional expression construct?
Protein Coding Sequence
Functional Expression Cassette
Resistance
Terminator
Promoter
SynBio Language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Dr. Myrtani Pieri
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Dr. Yensi Flores Bueso
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19
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