

BIO-621

Practical - Goemans Lab

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| Cursus | Sem. | Type |
|-------------------------|------|------|
| Molecular Life Sciences | | Opt. |

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|----------------------------|-------------------|
| Language of teaching | English |
| Credits | 1 |
| Session | |
| Exam | Oral presentation |
| Workload | 30h |
| Hours | 24 |
| Courses | 6 |
| Exercises | 3 |
| TP | 12 |
| Project | 3 |
| Number of positions | 4 |

Frequency

Every year

Remark

Open to max. 4 students. 3-day Block course, every year in January. To register, contact EDMS Administration. Please note that you are not allowed to inscribe in your own group

Summary

The students will get practical experience in (i) how to cultivate diverse bacteria (ii) how to treat them with antibiotics or (iii) with bacteriophages that they will isolate themselves from the environment.

Content

Over the last century, antibiotics have been one of the main pillars of modern medicine and have considerably contributed to the increase of our life expectancy. However, their overuse combined to the rapid adaptation power of bacteria has led to the emergence of antibiotic resistance and to health issues associated with their impact on the human gut microbiota.

In parallel, because of the lack of economic incentive, the private sector has strongly reduced its efforts in antibiotic research and development. There is therefore an urgent need to find alternative paths to target bacterial pathogens. Bacteriophages (or phages) are viruses that infect and replicate within bacterial cells. Because of their capacity to kill bacteria, phages have started to be used as antimicrobials about a century ago, but this rapidly collapsed when the first antibiotics were discovered. In the western world, phage therapy is currently going through a revival because of the antibiotic crisis, but is only used in compassionate-use interventions, when antibiotics are no longer working.

In this practical, the students will learn the basic techniques needed to work with antibiotics and phages in a classical microbiology lab.

Note

Please note that you cannot register in your own group Practical!

Note that 3 practical courses are mandatory for all EDMS students and that they have the priority; each course has between 2 to 4 possible slots.

Therefore, please do not register by yourself to this course, this will be done by the EDMS program administrator!

Keywords

Antibiotics, bacteriophages, bacteria, antibiotic resistance

Learning Outcomes

By the end of the course, the student must be able to:

- understand the fundamental concept of the performed experiments and to communicate their outcome.

Resources

Moodle Link

- <https://go.epfl.ch/BIO-621>