

A proposal of Practice Rotation classes by Department of Functional Genomics

Laboratory-150 hours

ECTS points-5

The course aims to organize and conduct an experiment to assess the selected gene polymorphism related to caffeine metabolism and the impact of this substance on cellular processes during *in vitro* research.

During the course, students:

1. Conduct a literature review on caffeine (systemic metabolism, molecular mechanisms of action and pharmacokinetics).
2. Review the literature and databases for on known polymorphisms related to caffeine metabolism and the regulation of gene expression.
3. Present their analyses as a results presentation.
4. Students will select one gene associated with caffeine metabolism and propose the study of its polymorphism by planning (designing primers and proposing a restriction enzyme) and drafting a methodology for the classes based on literature data.
5. Students will present proposals based on the literature on how to evaluate the effects of caffeic acid on cellular processes during *in vitro* research.
6. *In vitro* studies will be selected with the tutor's assistance to investigate the effect of caffeine on cell viability, proliferation, and apoptosis.
7. They will analyze their results from research experiments.

Assessment methods and criteria:

presentation of independent work of literature data and databases (points 3 and 5, two 10 points presentations)- 20 points

final exam - test from the theoretical and practical part of the course-20 points