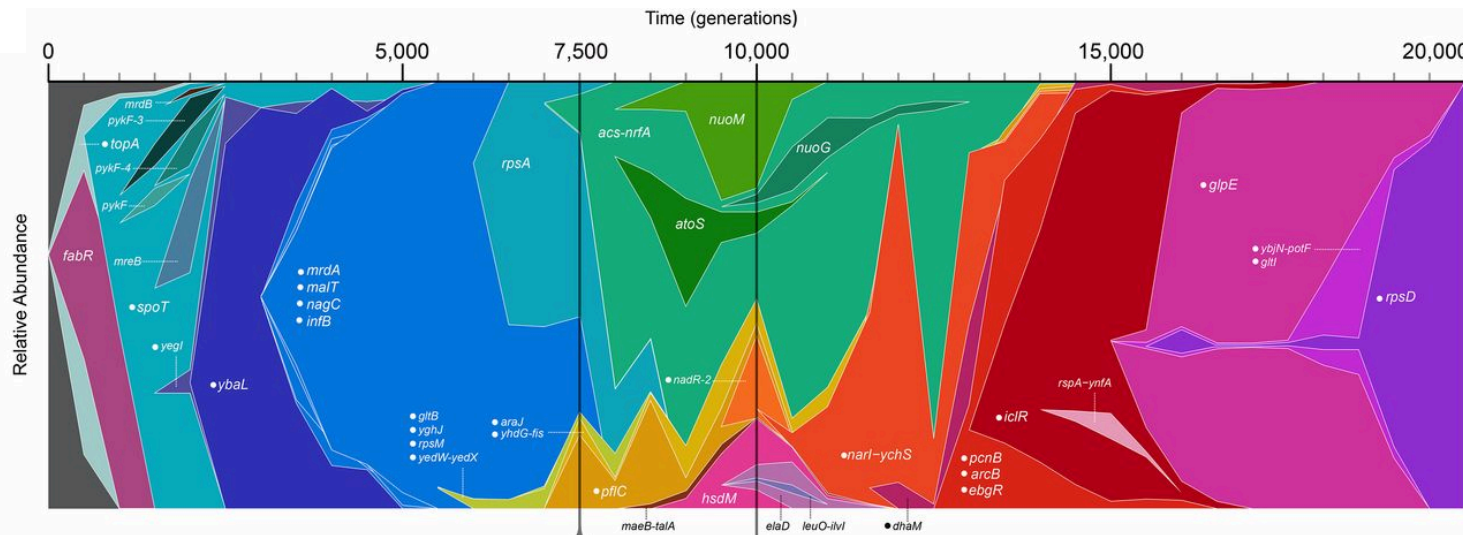


Overview:

- Participants will be introduced to the theory and applications of directed evolution techniques.
- Students will apply directed evolution principles to produce microbes with a specific phenotype.



Lecture topics:

- Introduction to directed evolution
- Metabolic pathways of *E. coli*
- Directed evolution *in vitro*
- Case studies
- Genome sequencing and analysis

Labs:

- 1) Students work in groups to choose their selective pressure and design their experimental setup.
- 2-6) Students apply experimental scheme and monitor the progression of their phenotype.
- 6) Students send out genomic samples for sequencing.
- 7) Students analyze genomic data and prepare a report on their findings.