PROJECT PROPOSITION - Lab1- 2023

(M1, second semester)

Supervisor(s): Luca Ciandrini, Philippe Fuchs and Johannes Keisers

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Hosting lab: CBS

Period of proposed project (put **x** instead of □) :

X Only 1st slot □ Only 2nd slot

□ One slot, but I have no preference on which □ Both slots (with different groups)

1st slot: 12 days to be selected later between 1/16/2023 to 2/24/2023- see next page for info
2nd slot: 12 days to be selected later between 3/6/2023 to 5/12/2023- see next page for info

qbio
quantitative
biology

QUANTIFYING BACTERIAL GROWTH UNDER SUBLETHAL DOSAGE OF ANTIBIOTICS

Subject *The idea that simple quantitative relationships relate cell physiology to cellular composition dates back to the 1950s, but the recent years saw a leap in our understanding of such "growth laws".*
In this project we will quantify, in a systematic way, the impact of sublethal dosage of antibiotics (acting on both transcription and translation) on bacterial growth and proteome allocation.

Technical tools to be used:

- Python coding for data analysis and parameter estimates
- OD600/fluorescence measurements (plate reader - no kinetics)
- RNA quantification
- BCA assay

Objectives:

We will measure the growth rate of different E.coli strains prepared by a collaborator at different sublethal doses of antibiotics, and if time allows prepare samples for total RNA and protein quantification at different conditions. The candidate will develop their own analysis workflow. A more theoretical modelling part can be proposed on request.

		Lundi	Mardi	Mercredi	Jeudi	Vendredi
Periode 1	16 au 20/01					
	23 au 27/01					
	30/01 au 03/02					
	06 au 10/02					
	13 au 17/02					
	20 au 24/02					

		Lundi	Mardi	Mercredi	Jeudi	Vendredi
Periode 2	06 au 10/03					
	13 au 17/03					
	20 au 24/03					
	27 au 31/ 03					
	03 au 07/04					
	10 au 14/04					
	17 au 21/04					
	24 au 28/04					
	02 au 05/05					
	08 au 12/05					