

Inria

Flash talk



Marielle Péré

Modeling

heterogeneous cancer drug
response in isogenic single-
cells to predict drug-
tolerant persisters




My background


UoE:
Research visit
Machine Learning in Biology



UPPA:
Undergrad.
And Master
In Maths.
Modeling and
Simulation



INRIA SAM:
Thesis
Computational
Biology

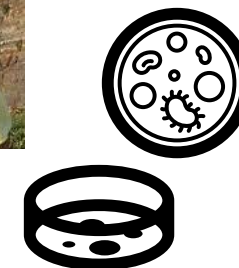
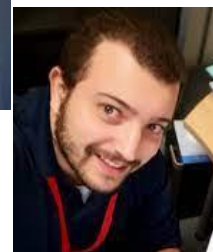


My team

Bi  co₂re



My team



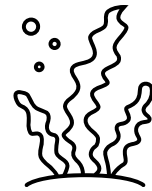
Team splitting in 2023



MACBES
Modeling And
Control of
Biological and
Ecological
Systems



Bi**co₂re**



Green Owl
All Green

Optimization of water living
microorganisms for generating
renewable resources

My supervisors



Madalena Chaves

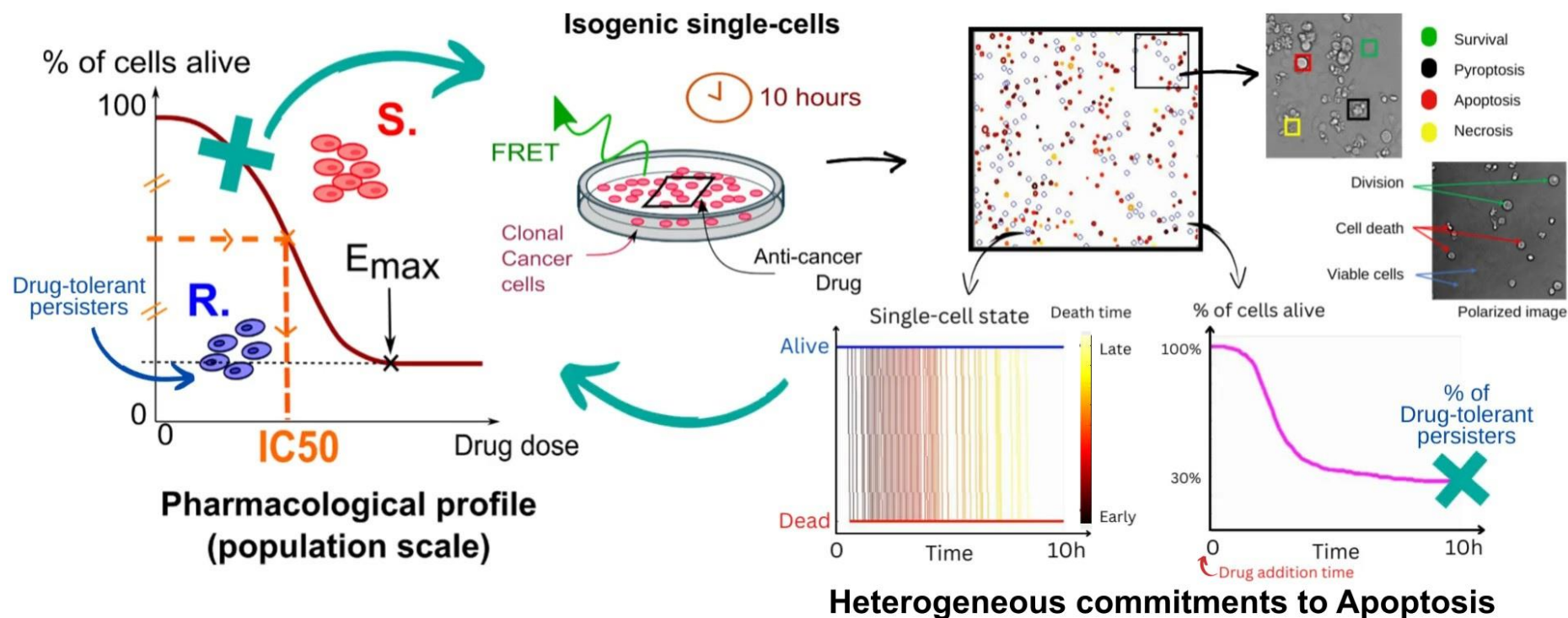
Dynamical systems in biology
(**stability, robustness, and control properties**)
+ ODE / Boolean / Piecewise models



Jérémie Roux

Biology, biochemistry, **Single-cell experiments**,
Computational biology
+ Drug-tolerant persisters

My thesis subject: Modeling heterogeneous cancer drug response in isogenic single-cells to predict drug-tolerant persisters

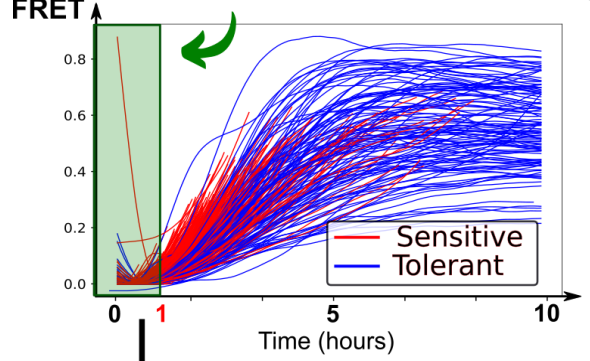


The tools I'll use

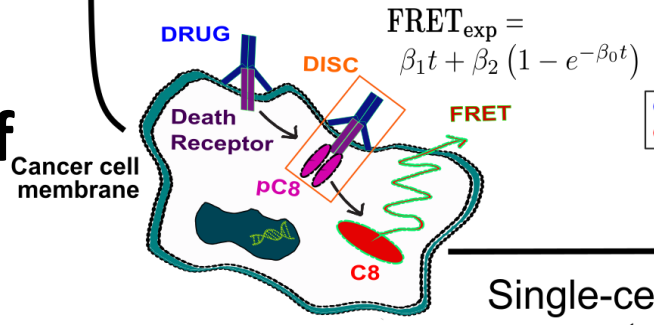
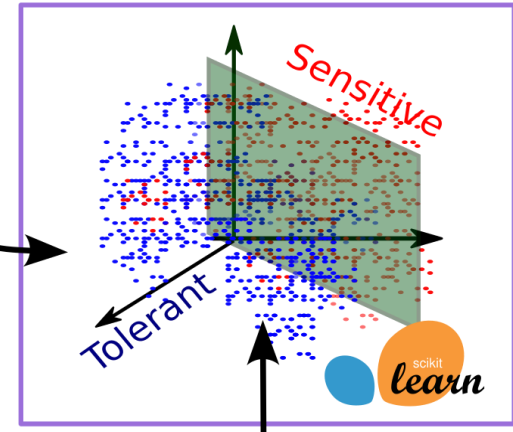
Machine learning

ODE models of apoptosis

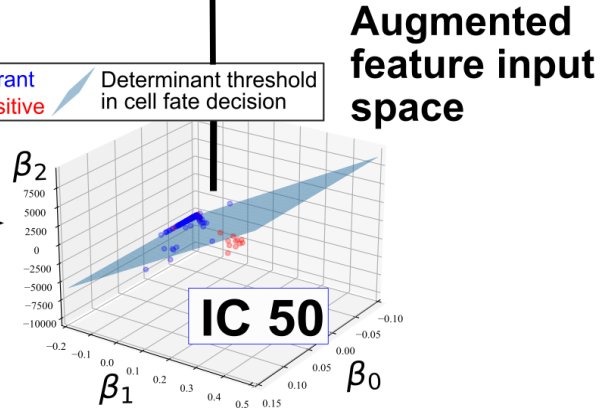
Sparse data - short time-trajectories



ML binary classifier



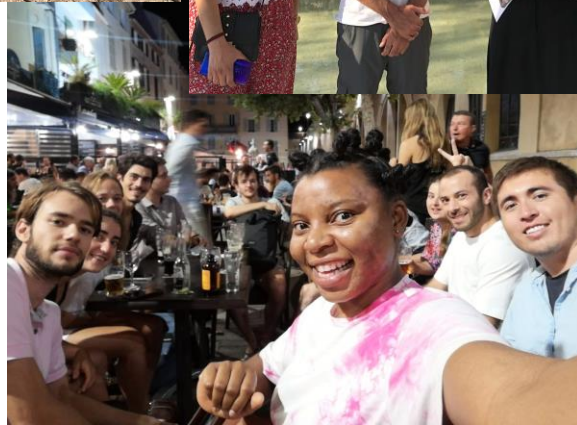
Single-cell parameter estimation



Augmented feature input space

Goal: find the causes of drug-tolerant persists and be able to forecast them during single-cell experiments

My team



Thank you !

Follow the PhD seminars INRIA Sophia!

