

# 1. Project aims

- How protein aggregation influences cell fitness?
- How this aggregation is selected in a population?
- How this selection can be modulated?

## 2. In vivo System

**Aggregation Tag** + **Enzymatic Activity**  
*Adjustable aggregation* + *Adjustable benefit*

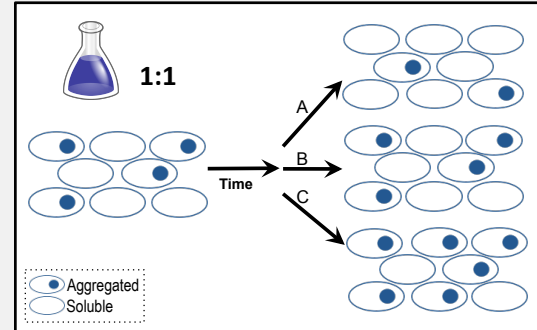
Enzymatic activity:

Substrate1 + Enzyme = Product1

Substrate2 + Enzyme = Product2

Culture composition	Enzyme	Aggregation
Medium + Substrate1	→ Essential	Noxious (A)
Medium + Product1	→ Not-essential	Neutral (B)
Medium + Substrate2 <sup>(*)</sup>	→ Toxic	Beneficial (C)

## 3. Simulation



## 4. Quantification

Aggregation selection = Loss of function<sup>A</sup> + Misfolding<sup>B</sup> + Gain of function<sup>C</sup>