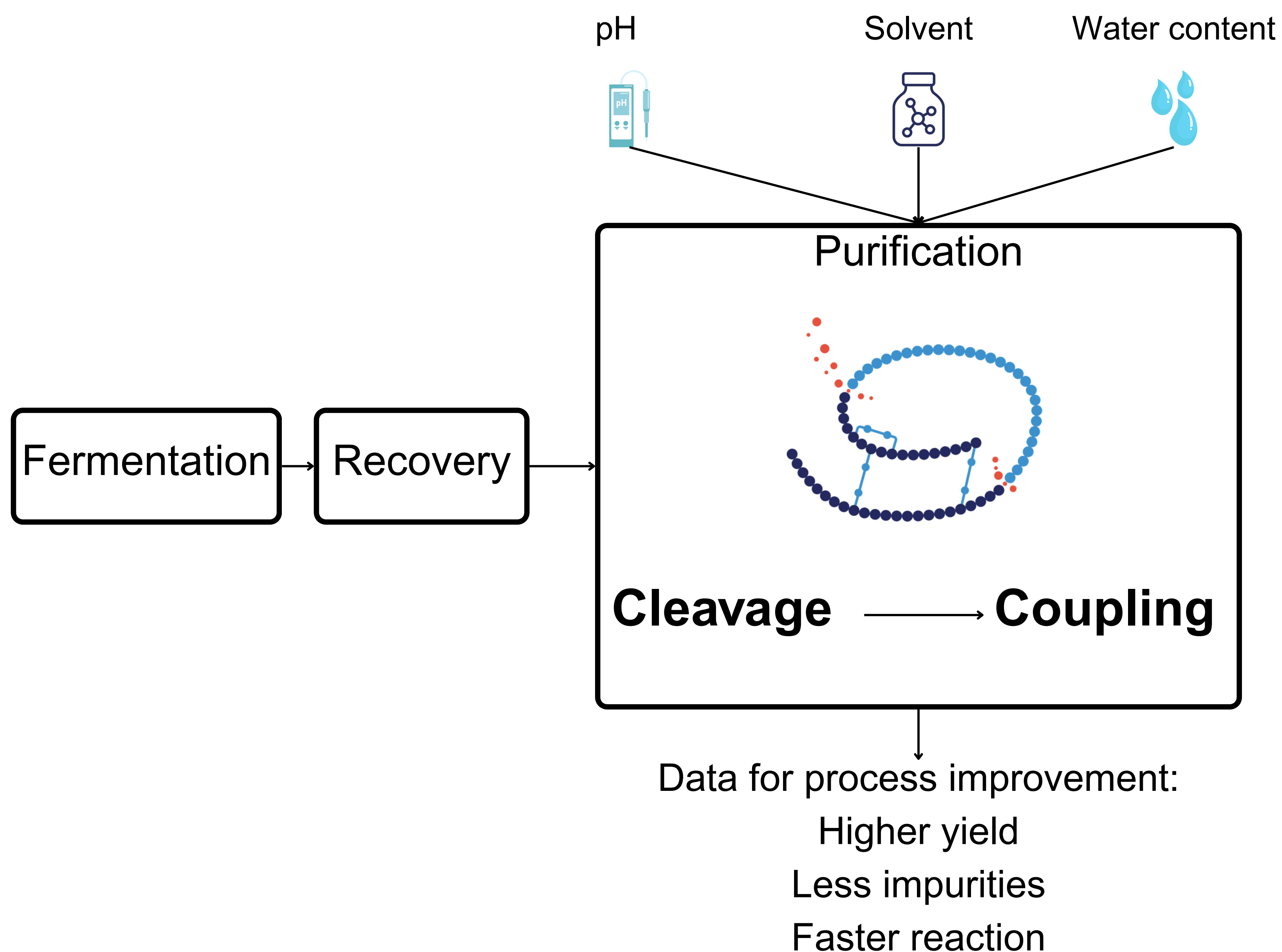


Insulin purification enzymatic synthesis: Investigation of reaction kinetics

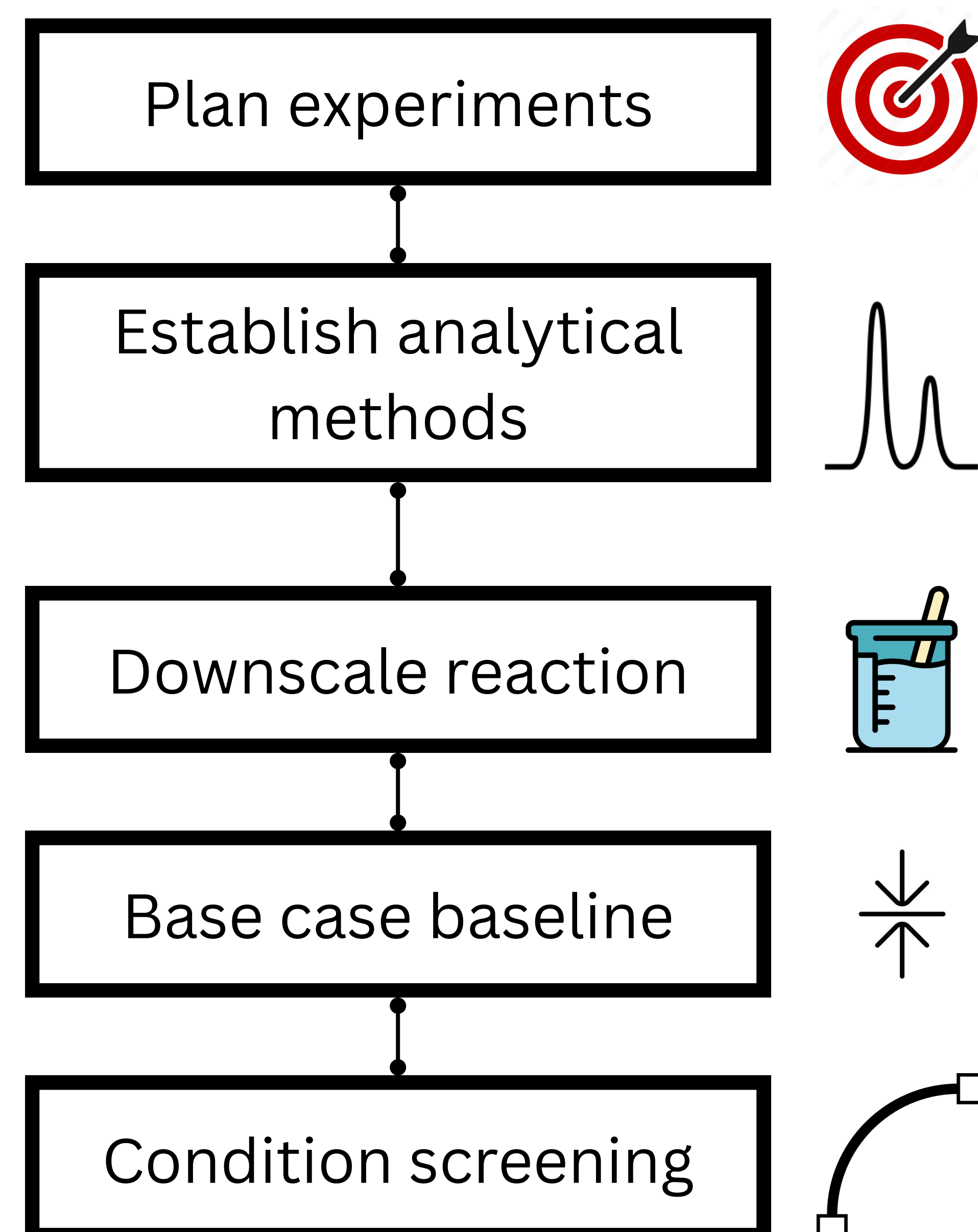
Student: Áron Karanci Company supervisors: Emmanouil Manolis Papadakis, Marta González García University supervisor: Bekir Engin Eser

Objective:

Improving reaction kinetics for higher capacity in insulin production

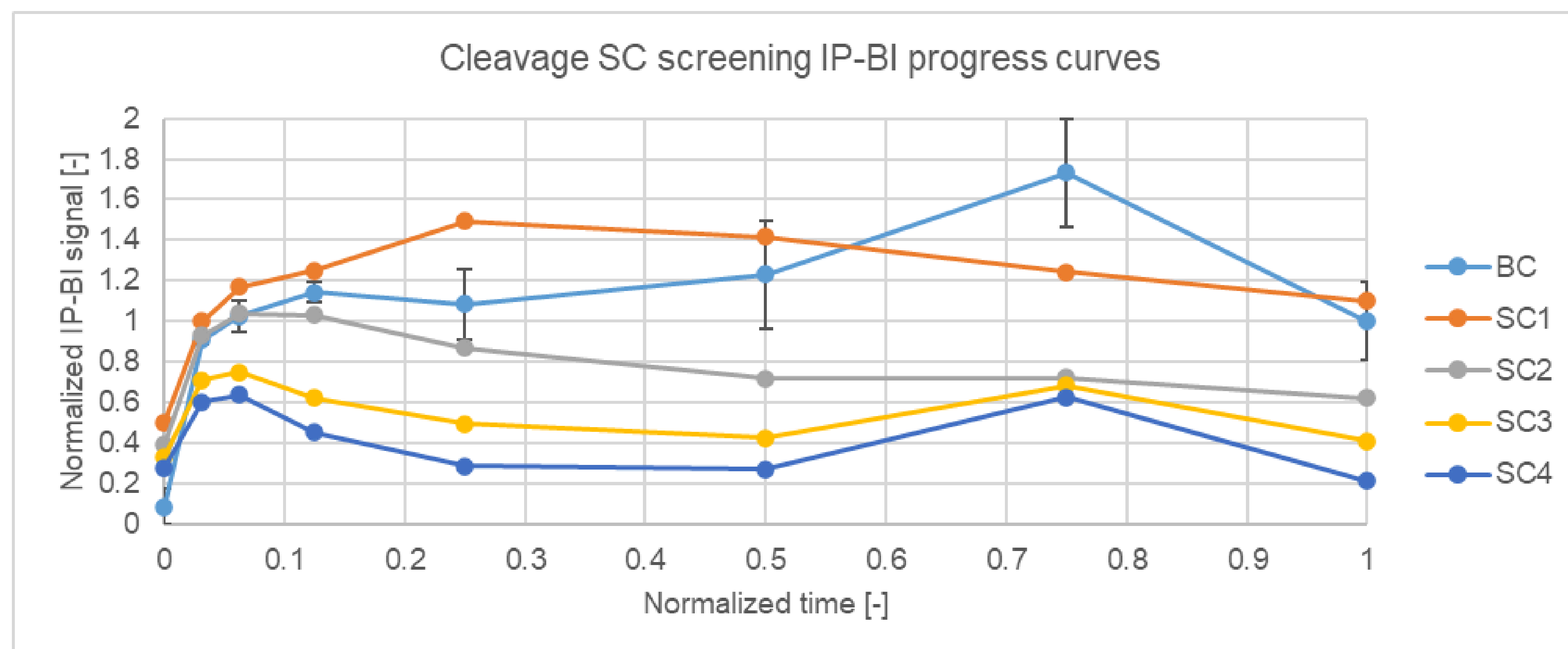


Workflow



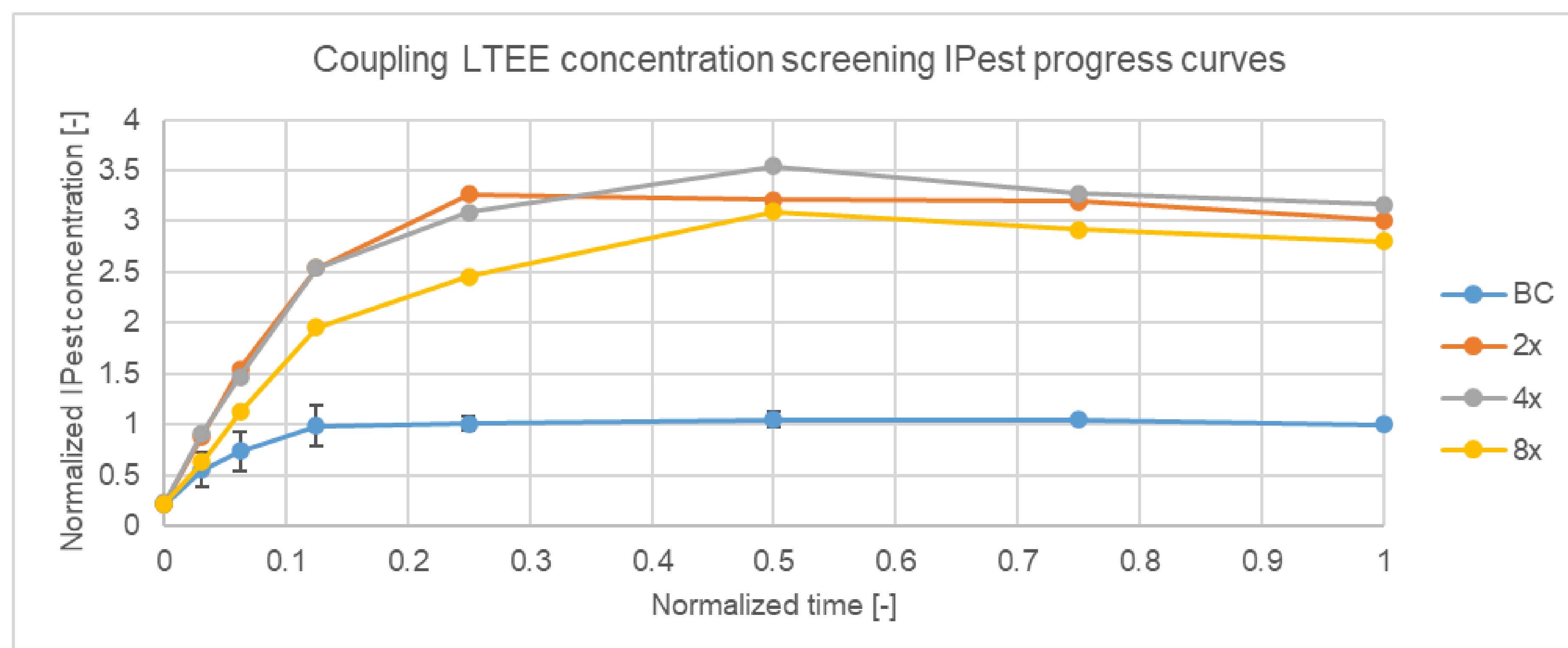
Cleavage results

- Higher solvent content and green solvents can decrease impurity levels
- Replace current hazardous solvent
 - Potential for a two-pot solution



Coupling results

- Ethanol solvents cause precipitation
 - Shift equilibrium towards synthesis
- Lower solvent content increases yield and impurities
- Higher LTEE concentration improves yield



Perspectives

1. Further screening: Automated sampling, DoE, advanced data analysis
2. Two-pot reactions: UF/DF between steps
3. Continuous flow: PAT technologies, new conditions
4. Two-phase reaction systems: Use ionic liquids

Helix Lab

