

Controlling the Self-assembly and Crystallization in Stimuli-Responsive Coacervate Microcompartments

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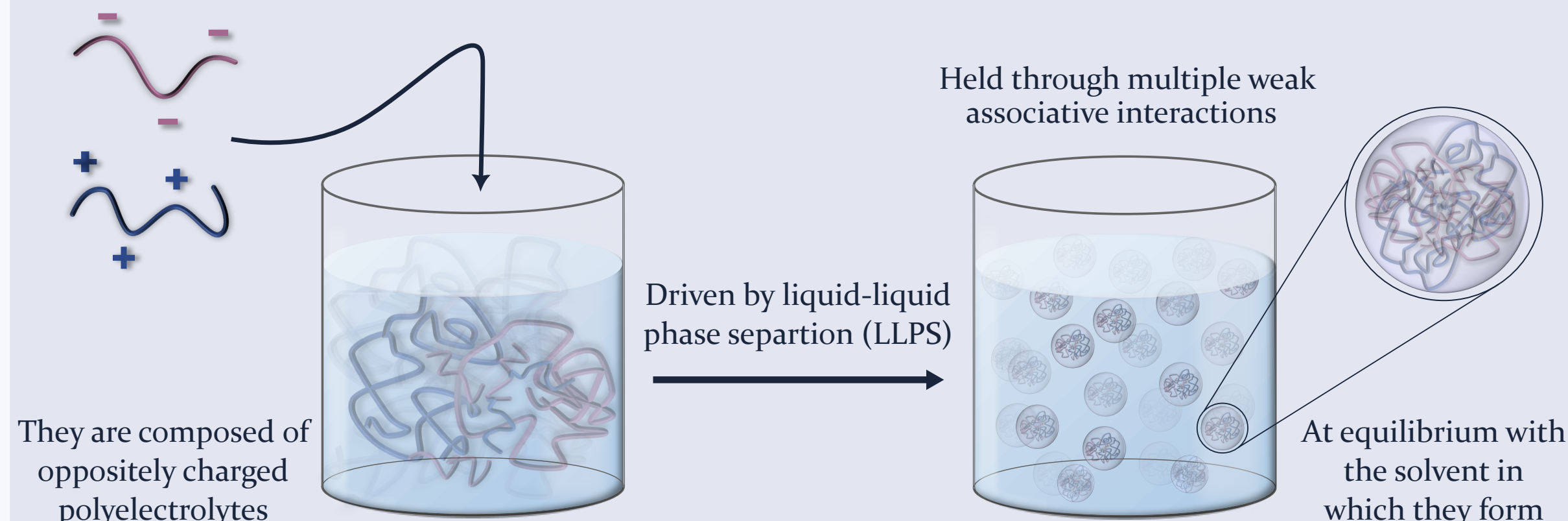
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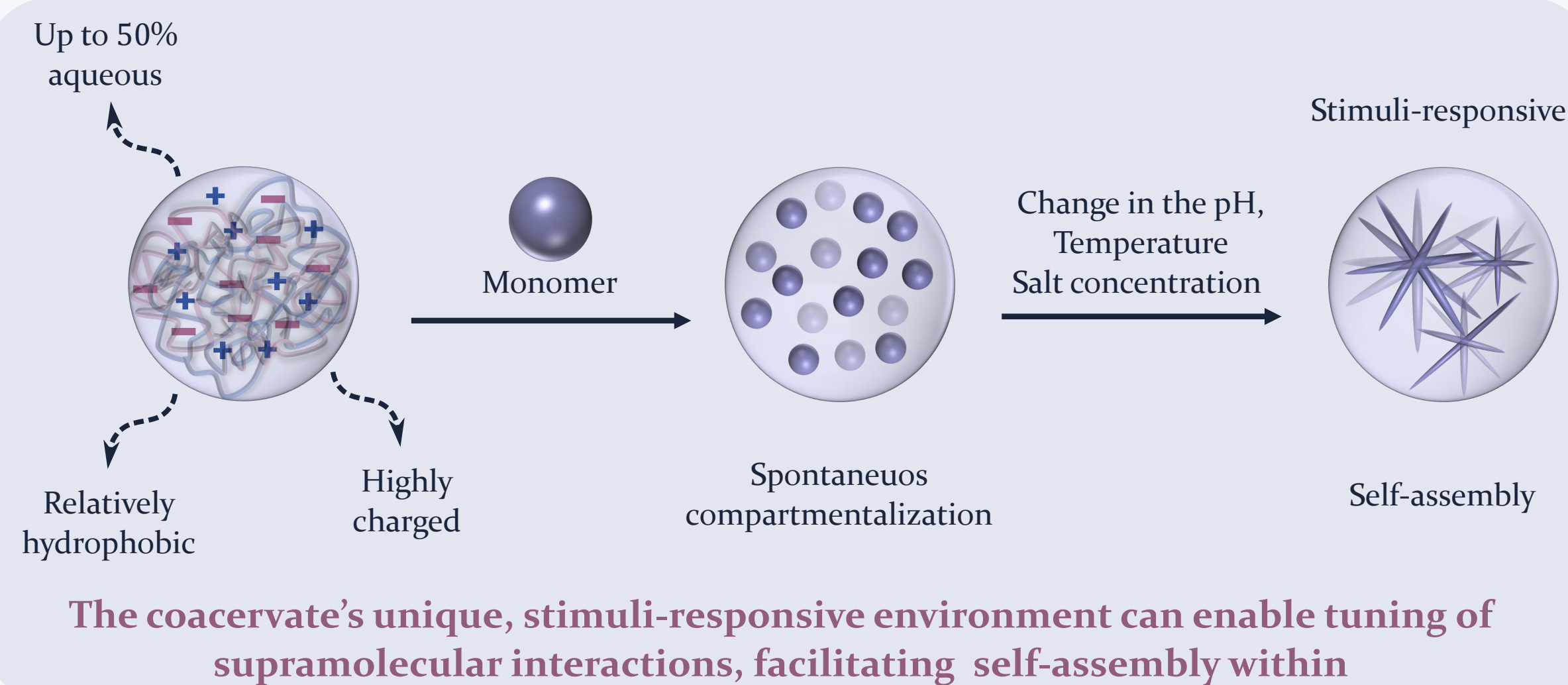
INTRODUCTION

What are complex coacervates?

Coacervates are phase separated liquid droplets that lack a surrounding membrane

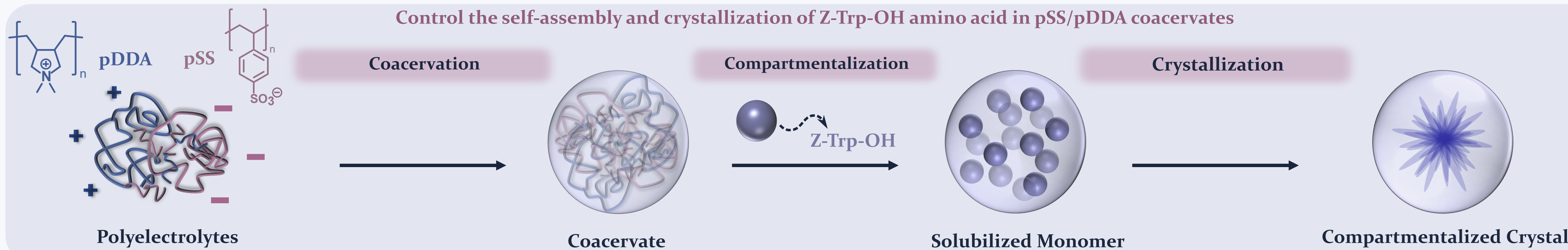


Why coacervates for controlling crystallization?



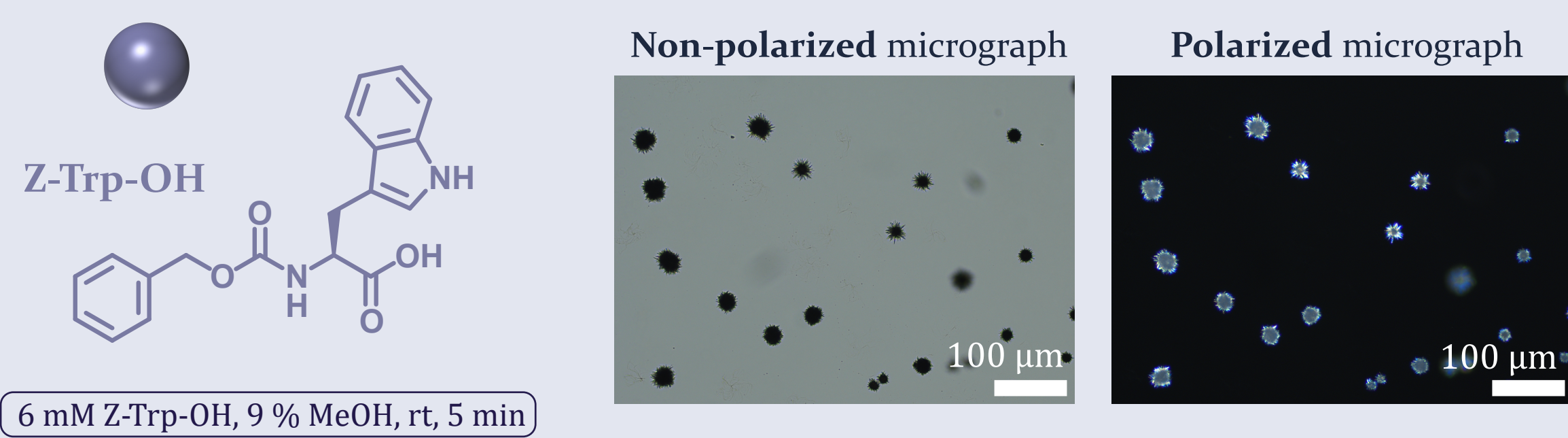
CONCEPT & STRATEGY

Control the self-assembly and crystallization of Z-Trp-OH amino acid in pSS/pDDA coacervates

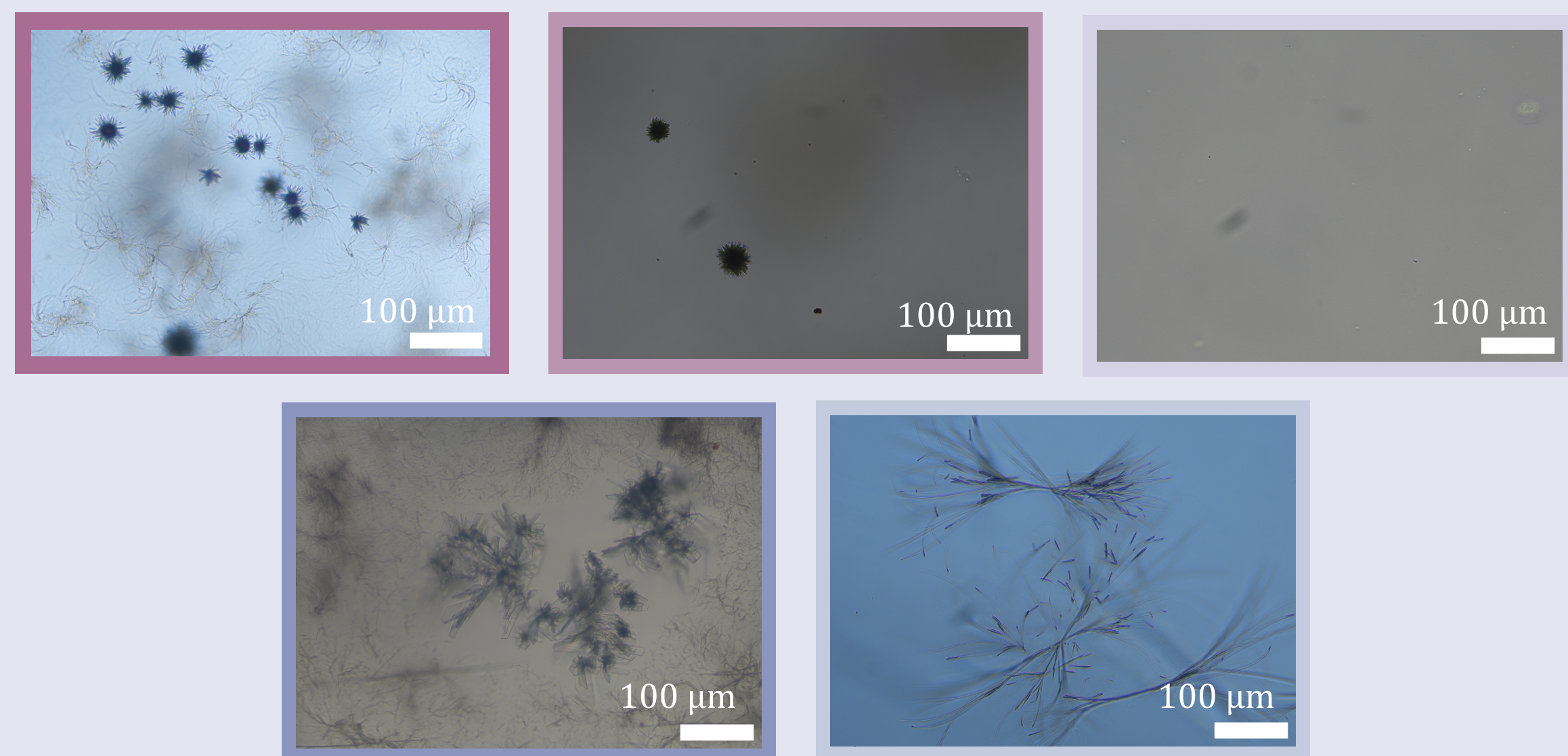
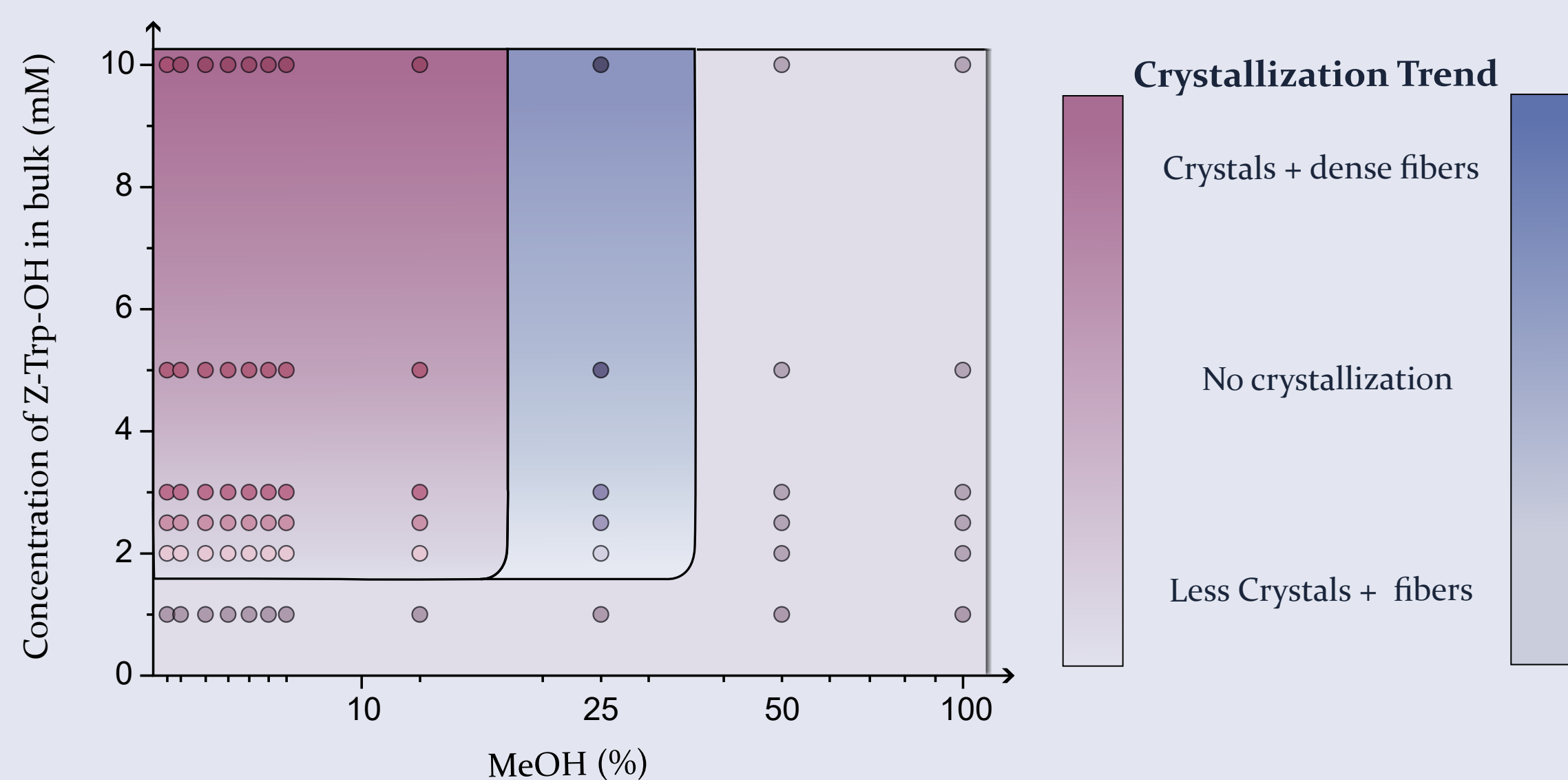


EXPERIMENTAL WORK

I. Crystallization of Z-Trp-OH in solution



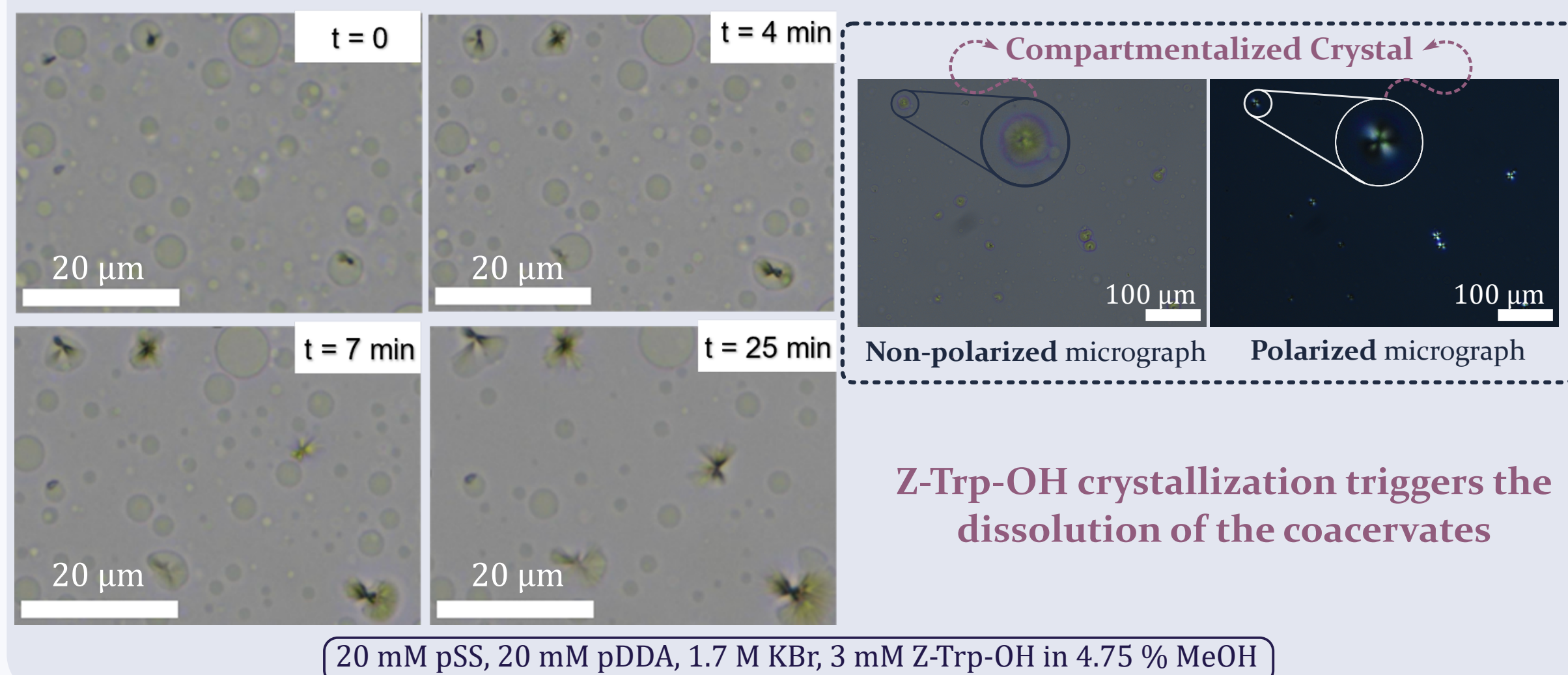
Phase Diagram of different concentrations of Z-Trp-OH in bulk vs. methanol gradient



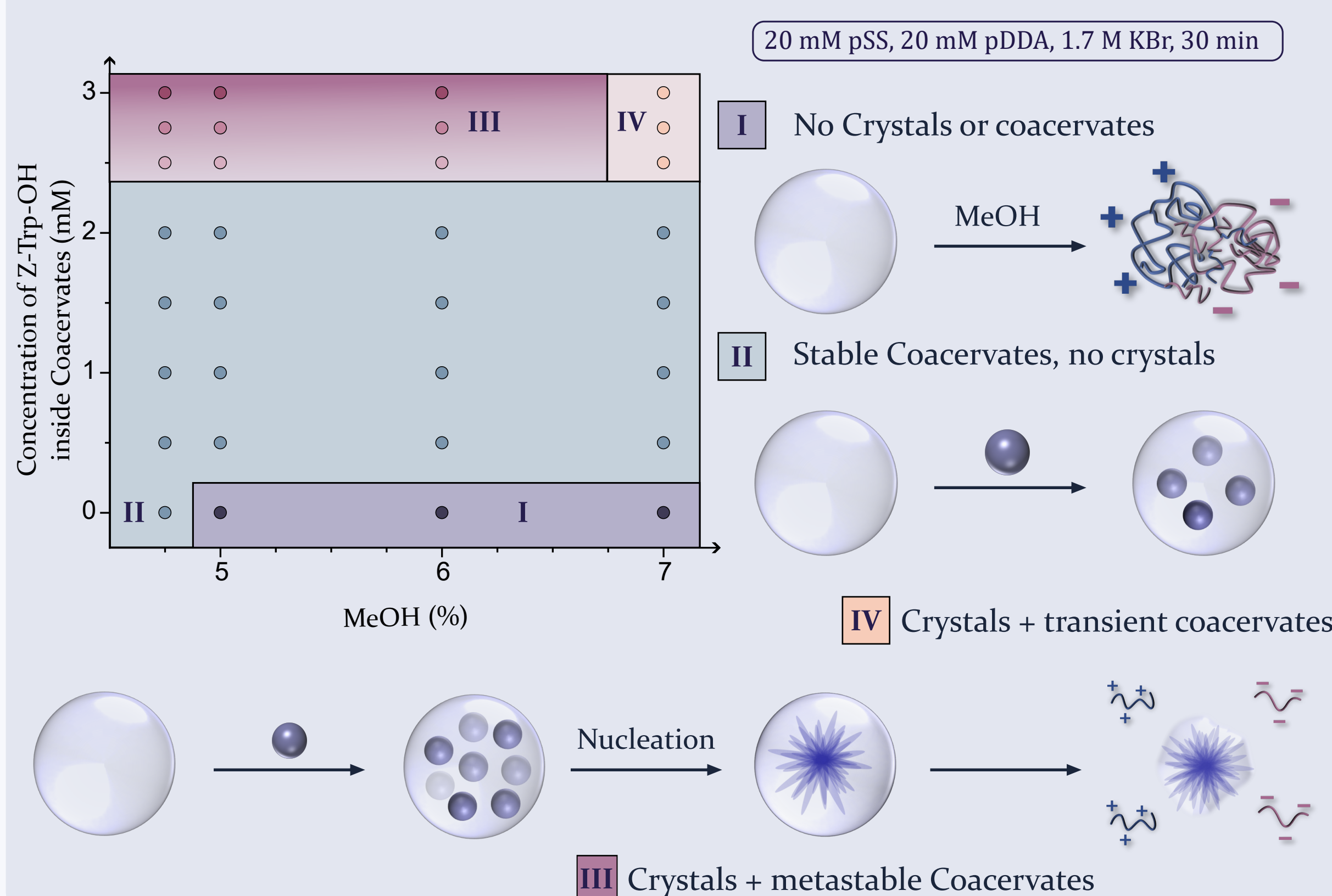
Z-Trp-OH can form different morphologies in bulk at high methanol percentages

II. Crystallization of Z-Trp-OH in coacervates

Time-lapse frames of the crystallization of Z-Trp-OH in pSS/pDDA coacervates



Phase Diagram of coacervates across Z-Trp-OH concentrations and methanol gradient



REFERENCES

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CONCLUSION

- We observed that Z-Trp-OH can form diverse morphologies based on solvent polarity
- The amino acid plays a protective role in stabilizing coacervates
- The results highlight a dynamic behavior where the coacervates concentrate the amino acid, while the crystallization of the amino acid alters or destabilizes the compartment itself