

Solutes shift phase equilibria of biomolecular condensates

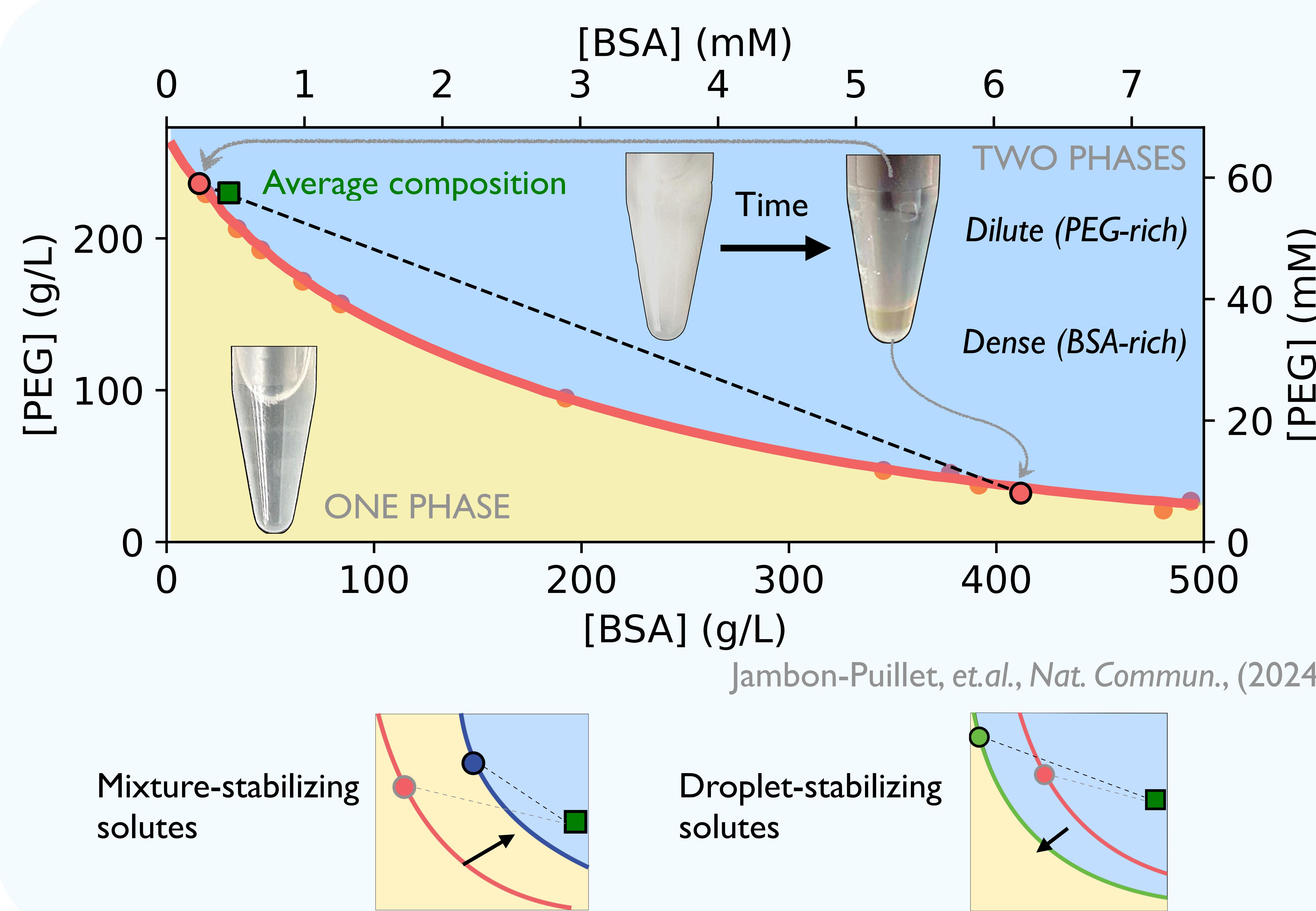
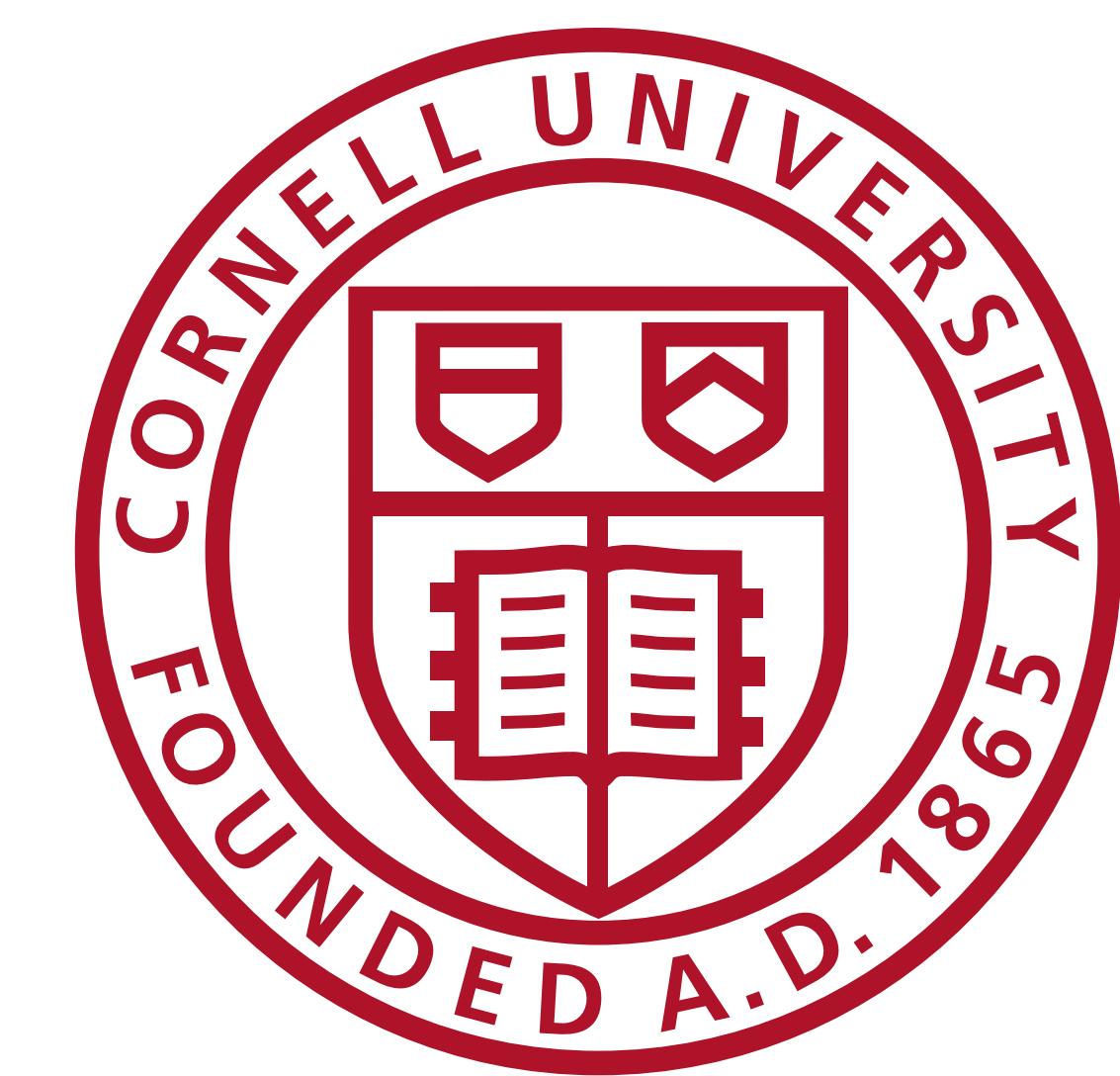
Takumi Matsuzawa¹, Kaarthik Varma¹, Charlotta Lorenz^{1,2}, Etienne Jambon-Pillet²,

Eric R. Dufresne^{1,2}

¹ Cornell University, USA, ² ETH Zürich, Switzerland

tmatsuzawa@cornell.edu

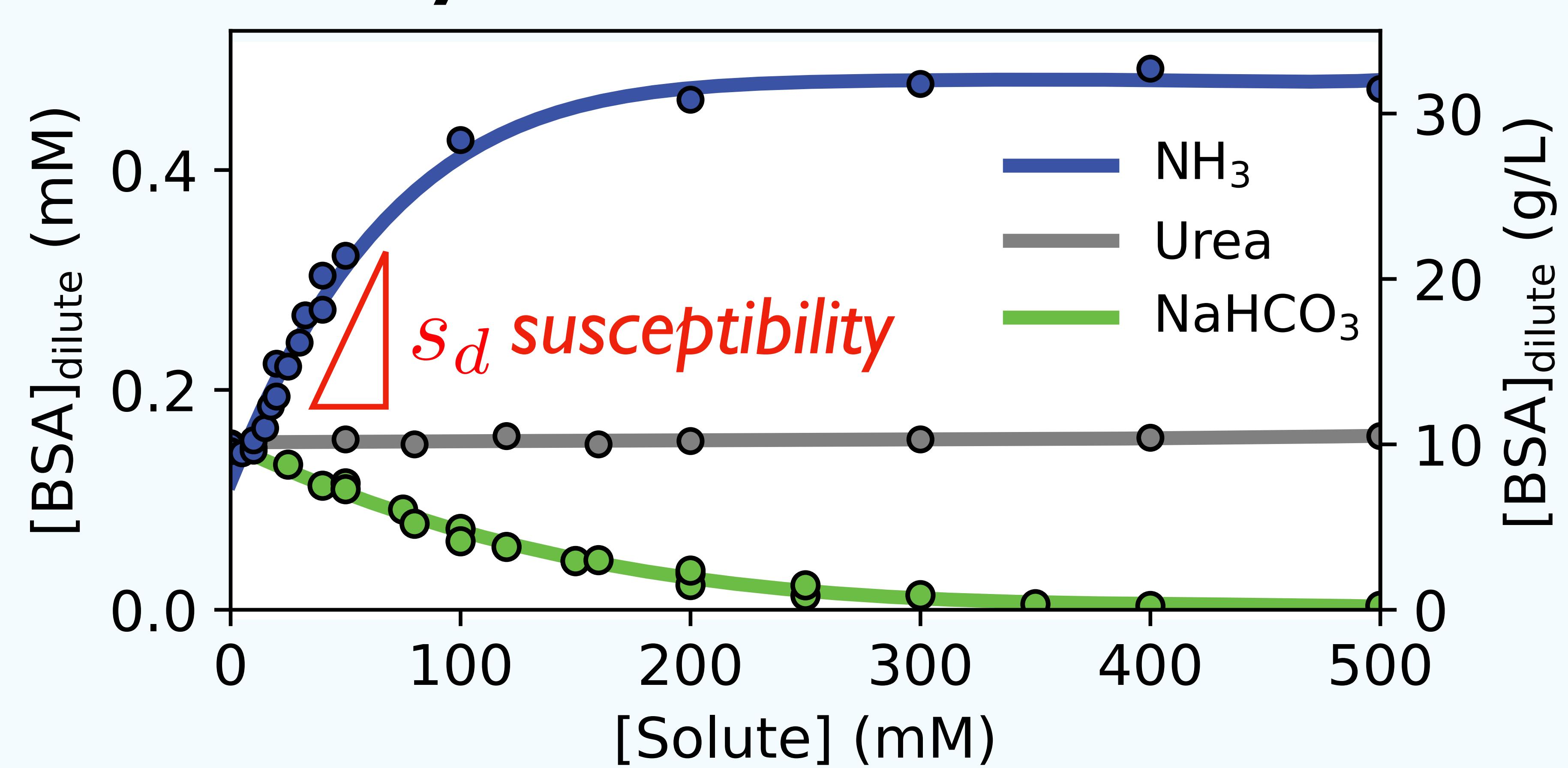
✉@takumi_matz, @SoftLiv_Cornell



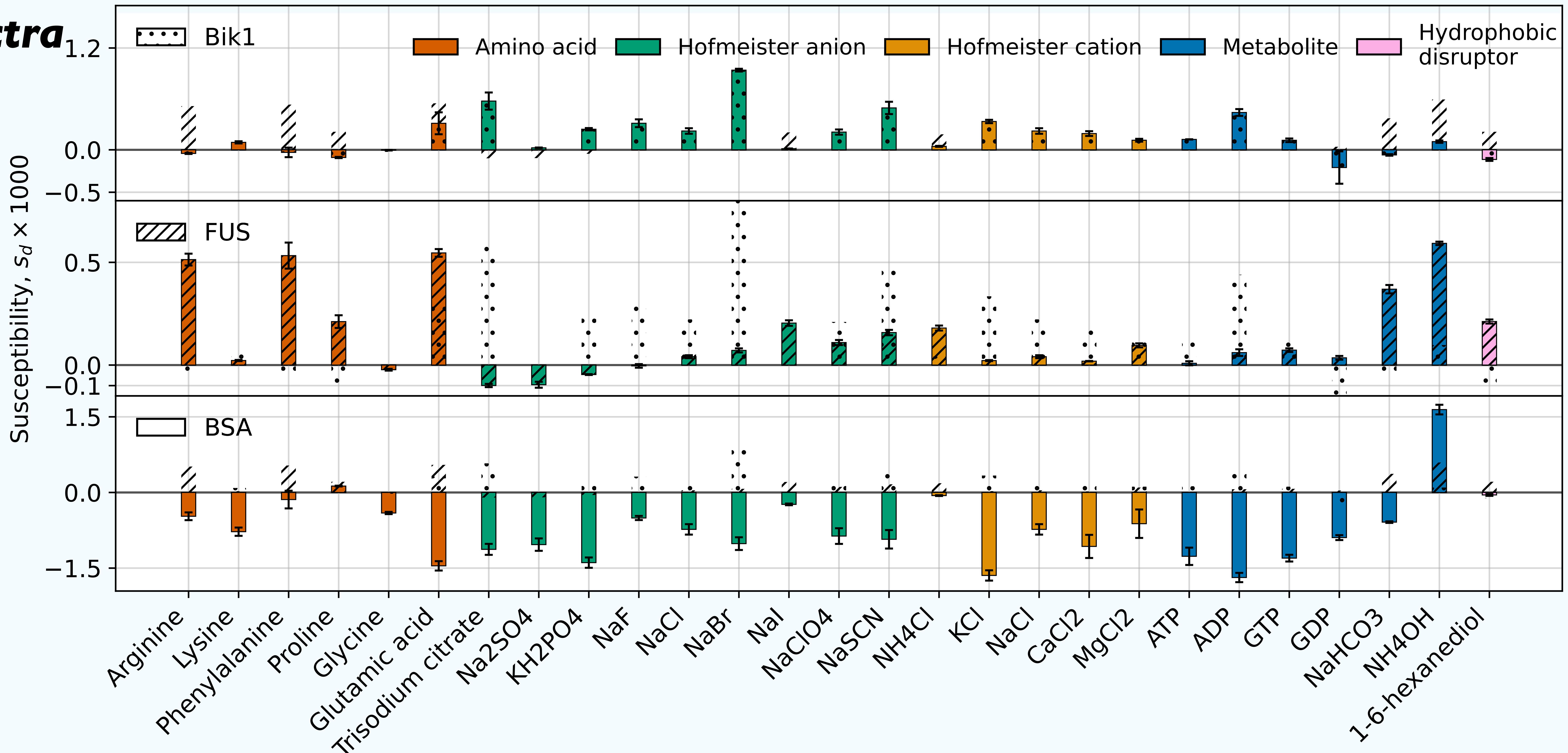
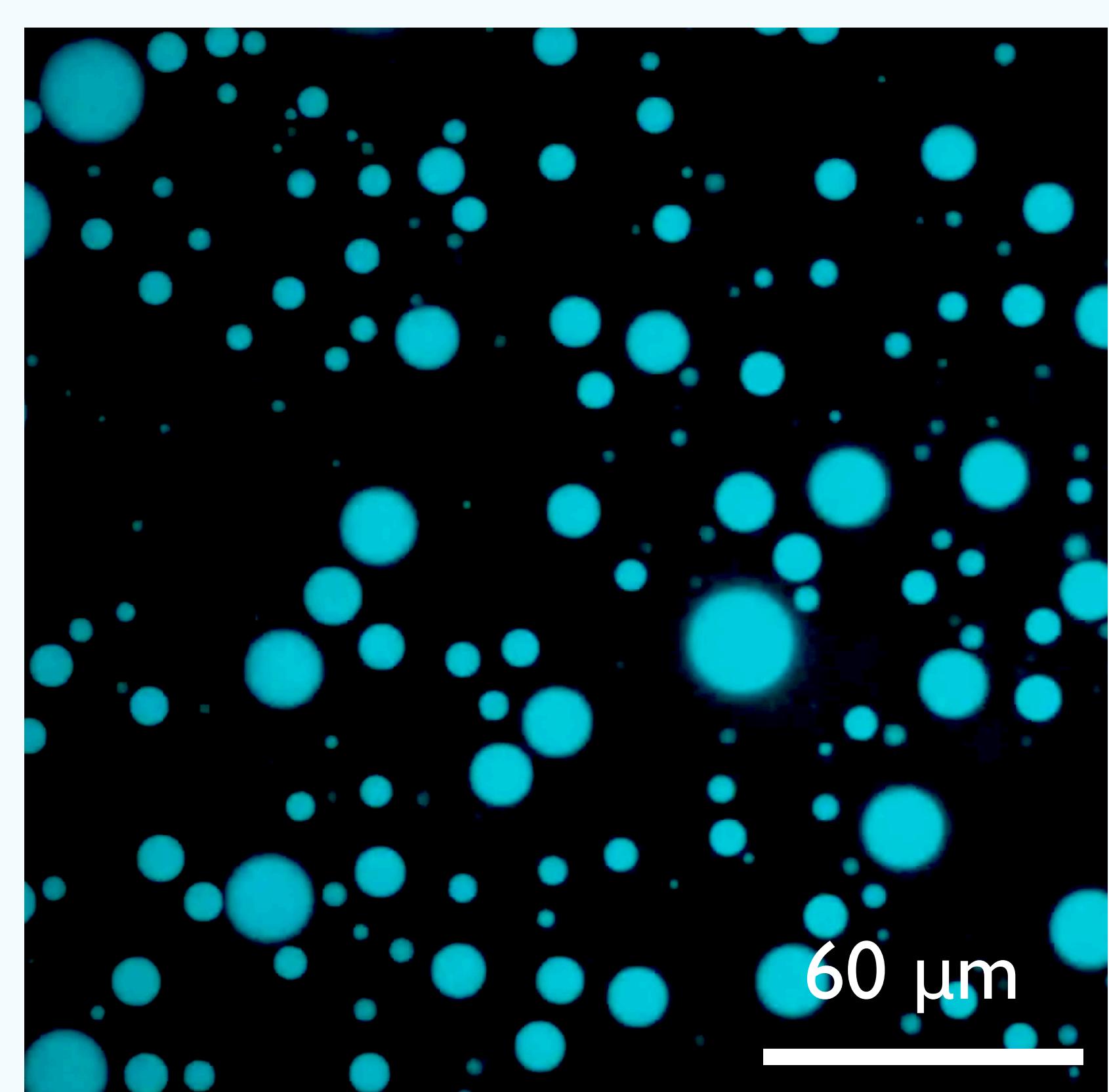
Cells harness liquid-liquid phase separation (LLPS) to organize the cytoplasm, allowing them to compartmentalize chemical reactions and shielding proteins from damaging substances.

Solutes play an essential role in this process by tuning the onset of LLPS.

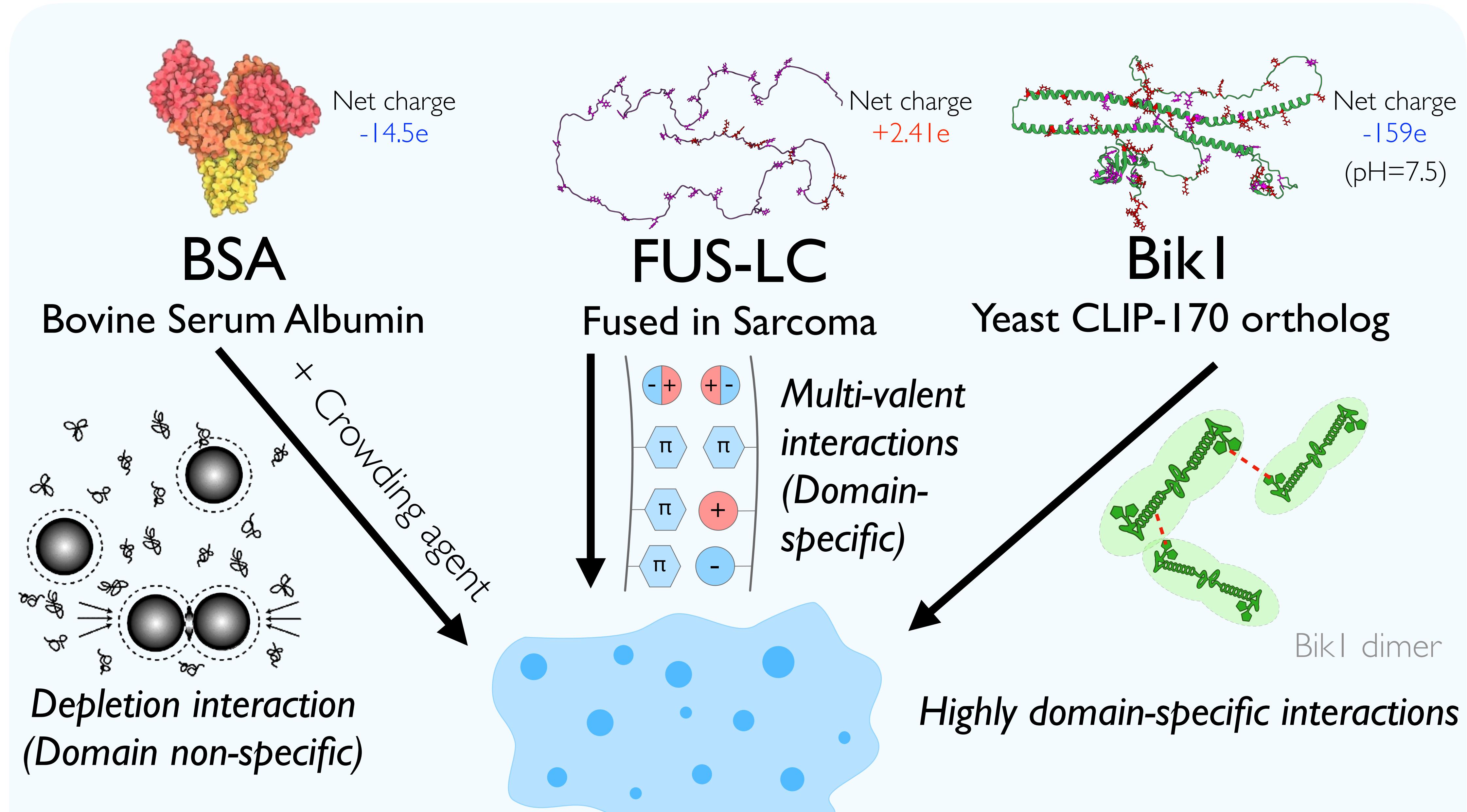
How do natural metabolites and synthetic molecules alter the LLPS?



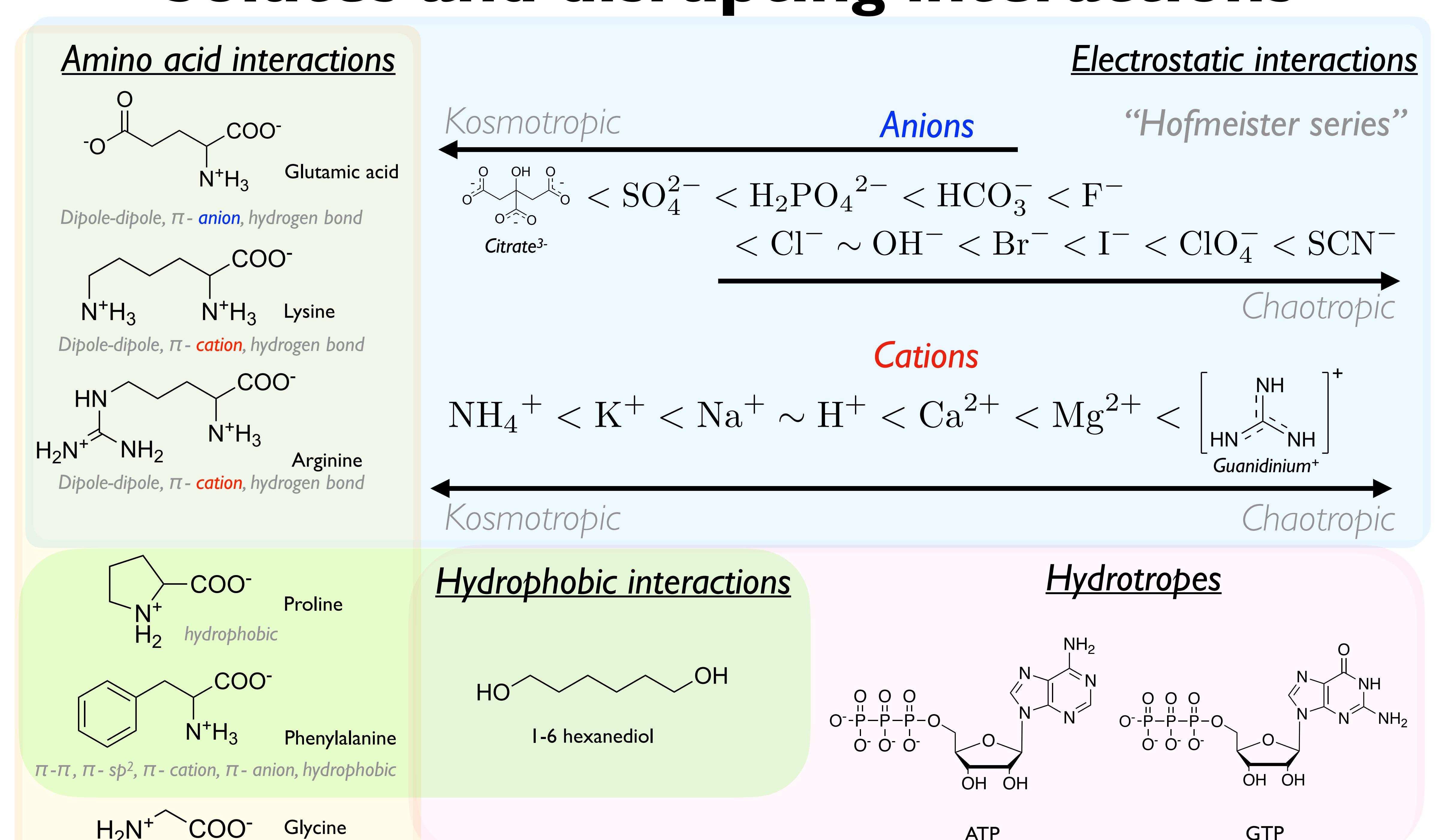
Susceptibility spectra reveal the molecular mechanisms of LLPS.



Model condensates driven by distinct interactions



Solutes and disrupting interactions



Bimolecular condensates exhibit a wide range of responses to solutes, depending on the interactions driving LLPS.

Susceptibility quantifies these effects, allowing for comparison of the responses of different condensates to various solutes.