

Description of Additional Supplementary Files

File Name: **Supplementary Movie 1** Description: A movie showing the lower critical solution temperature (LCST) phase behavior of SIDP1-GFP fusion protein from 4 to 25oC in vitro.

File Name: **Supplementary data 1** Description: The mass spectrometry data of synthetic intrinsically disordered proteins that form condensates.

File Name: **Supplementary data 2** Description: The termination codons usage frequency within Bacillus subtilis. The locus, name, function, and termination codon of each gene were provided.

File Name: **Supplementary data 3** Description: Testing the effect of inaccuracy in gene expression that utilize amber codon as the stop codon on biomass in Luria–Bertani medium, minimal medium with glucose, and minimal medium with glycerol using comprehensive multiscale metabolic model for Bacillus subtilis, respectively.