

Title: Supplementary Movie 1:

Description: Definition of the PEG-BSA phase separated system and experimental movies of active PEG-BSA droplets swimming towards each other on a PEGDA 12k coating.

Title: Supplementary Movie 2:

Description: Schematic of the gradient chamber and movies showing internal flows of passive PEG-BSA droplets in various external chemical gradients.

Title: Supplementary Movie 3:

Description: Movie of an active PEG-BSA droplet slowly dissolving.

Title: Supplementary Movie 4:

Description: Movies of passive PEG-BSA droplet swimming and dissolving in extreme external gradients.