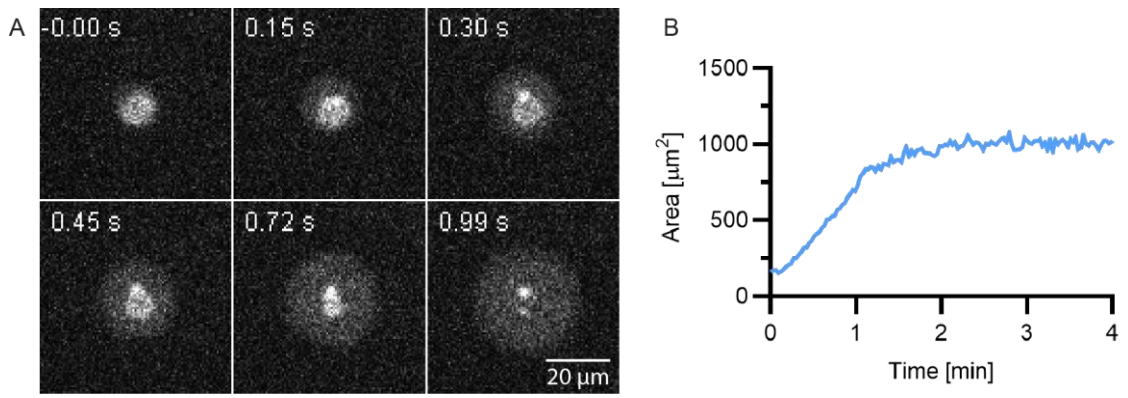


## Supporting Information

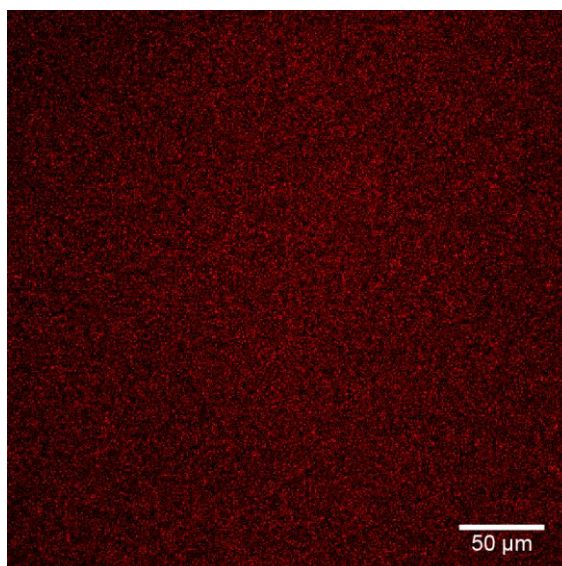
### Design of Sealable Custom-Shaped Cell Mimicries Based on Self-Assembled Monolayers on CYTOP Polymer

Hirumune Eto<sup>1</sup>, Naoki Soga<sup>2</sup>, Henri G. Franquelim<sup>1</sup>, Philipp Glock<sup>1</sup>, Alena Khmelinskaia<sup>1,3</sup>, Lei Kai<sup>1,4</sup>, Michael Heymann<sup>1</sup>, Hiroyuki Noji<sup>2</sup>, Petra Schwille\*<sup>1</sup>

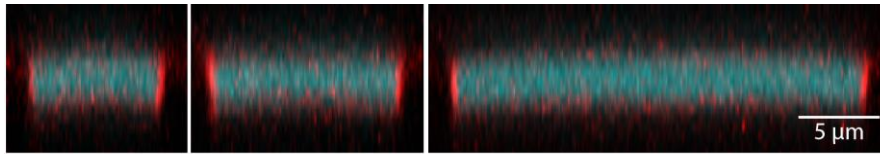
- 1- Max Planck Institute of Biochemistry, Am Klopferspitz 18, D-82152 Martinsried, Germany
  - 2- Department of Applied Chemistry, Graduate School of Engineering, The University of Tokyo, Bunkyo-ku, Tokyo 113-8656, Japan.
  - 3- Institute for Protein Design, University of Washington, Seattle, WA, USA.
  - 4- School of Life Sciences, Jiangsu Normal University, Shanghai Road 101, 221116, Xuzhou, P.R. China
- \* Corresponding author: [schwille@biochem.mpg.de](mailto:schwille@biochem.mpg.de)



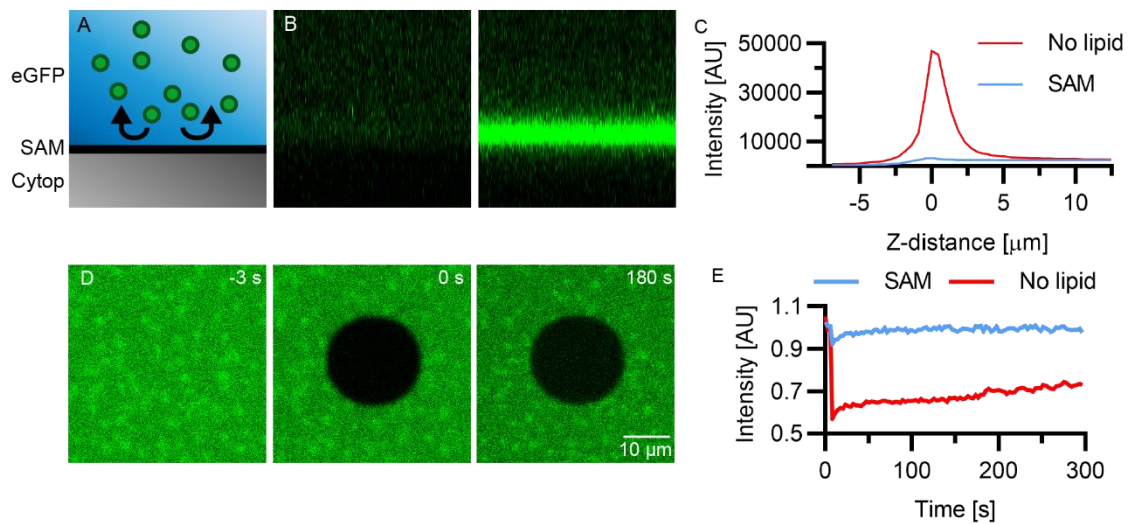
**Figure S1:** (A) Time lapse of GU hemifusion with CYTOP (Movie 1); (B) corresponding SAM area over time.



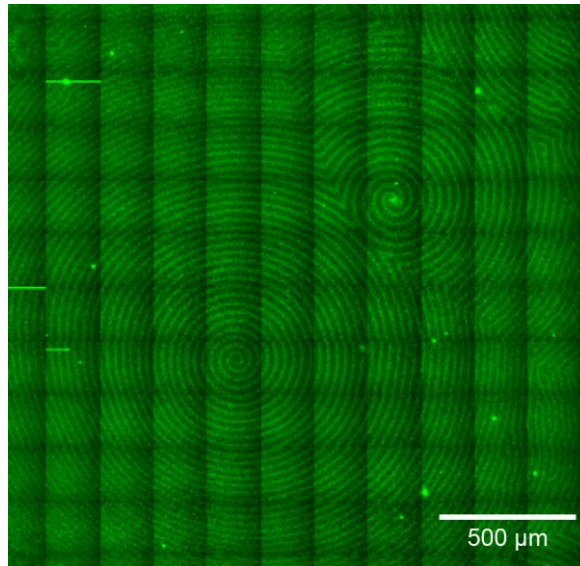
**Figure S2:** Homogeneous SAM coverage over 354.25  $\mu\text{m}$  x 354.25  $\mu\text{m}$  field of view. Lipids are labelled red with ATTO655-DOPE.



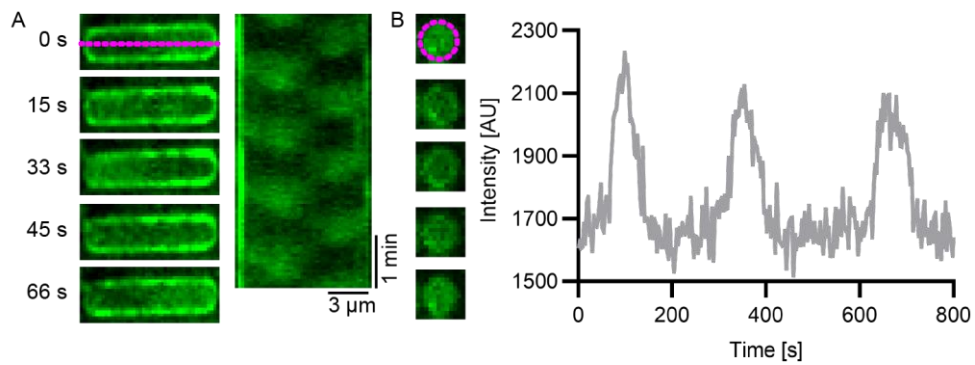
**Figure S3:** z-stack of sealed chambers with aspect ratios 1:1.5, 1:2.5, 1:5.



**Figure S4:** Passivation of eGFP against adhesion onto CYTOP surface (A). A confocal z-stack image was taken at the CYTOP surface with (B, left) and without (B, right) SAM, and intensity in Z was plotted in (C). Without the SAM passivation, intensity on the surface was 16-fold higher than in solution. FRAP analysis on the surface (D,E) showed permanent adhesion of eGFP on the CYTOP surface without SAM, as well as some aggregates.



**Figure S5:** MinDE patterns over an extended area of 2 mm x 2 mm. Concentrations MinD 0.5 μM, MinE 0.5 μM.



**Figure S6:** MinDE encapsulation in replica molded chambers. As with RIE-fabricated chambers, the longer chambers performed pole-to-pole oscillations (A) while the more symmetric chambers showed “blinking” (B), showing little difference in their behavior between the two fabrication methods.