

Supporting Information

Lipid surfaces and glutamate anions enhance formation of dynamic biomolecular condensates containing bacterial cell division protein FtsZ and its DNA-bound regulator SlmA

Gianfranco Paccione[§], Miguel Á. Robles-Ramos[§], Carlos Alfonso[§], Marta Sobrinos-Sanguino[§], William Margolin[¶], Silvia Zorrilla^{§‡}, Begoña Monterroso^{§‡*}, Germán Rivas^{§*}*

[§] Centro de Investigaciones Biológicas Margarita Salas, Consejo Superior de Investigaciones Científicas (CSIC), 28040-Madrid, Spain

[¶] Department of Microbiology and Molecular Genetics, McGovern Medical School, University of Texas, Houston, TX 77030, USA

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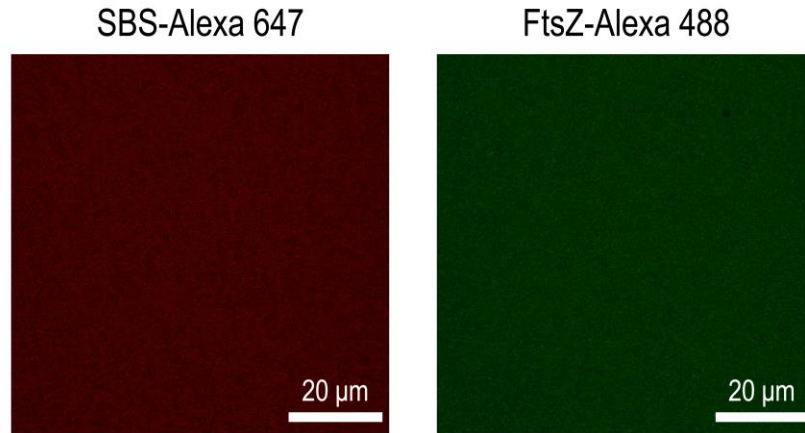


Figure S1. Individual behavior of SlmA·SBS (in the absence of FtsZ, left) and FtsZ (in the absence of SlmA·SBS, right) on a supported lipid bilayer. Fluorescence confocal microscopy images of samples in standard conditions, with the indicated elements.

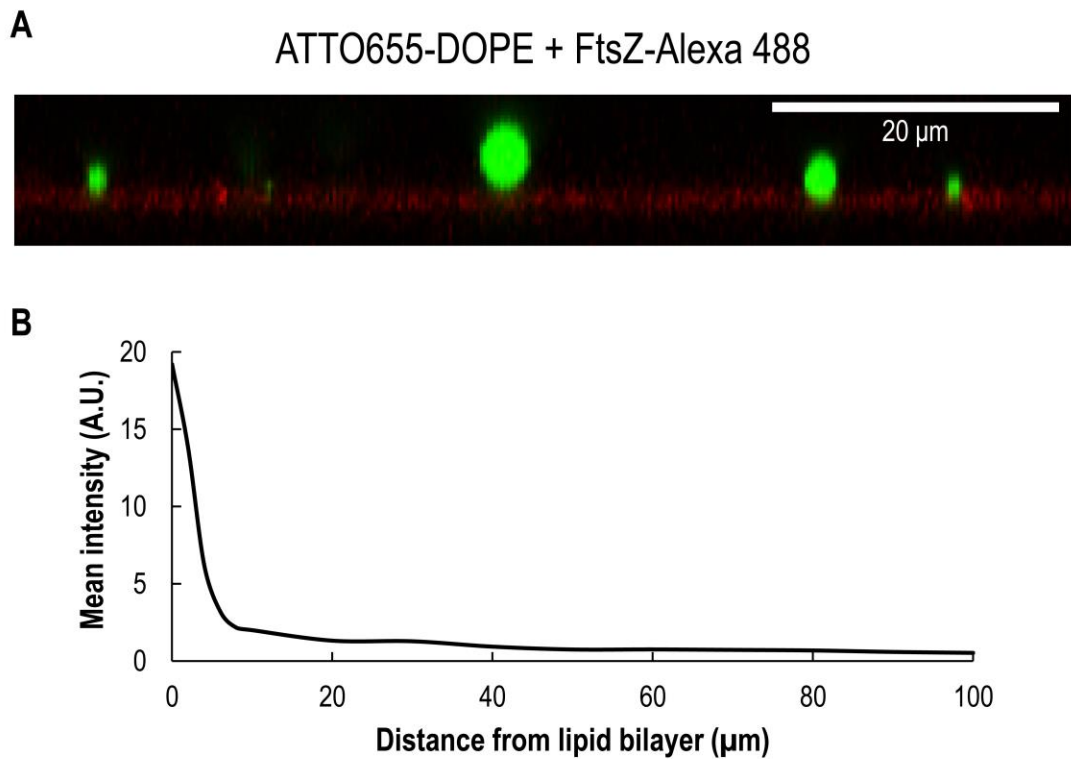


Figure S2. Arrangement of the FtsZ·SlmA·SBS condensates on a supported lipid bilayer. (A) Orthogonal view (YZ) of a Z-stack of fluorescence confocal microscopy images. Condensates in standard conditions. Lipid bilayer labeled with 0.05% mol ATTO655-DOPE. (B) Z-plot profile of the mean intensity of fluorescence images of FtsZ·SlmA·SBS droplets in standard conditions, after 60-min incubation.

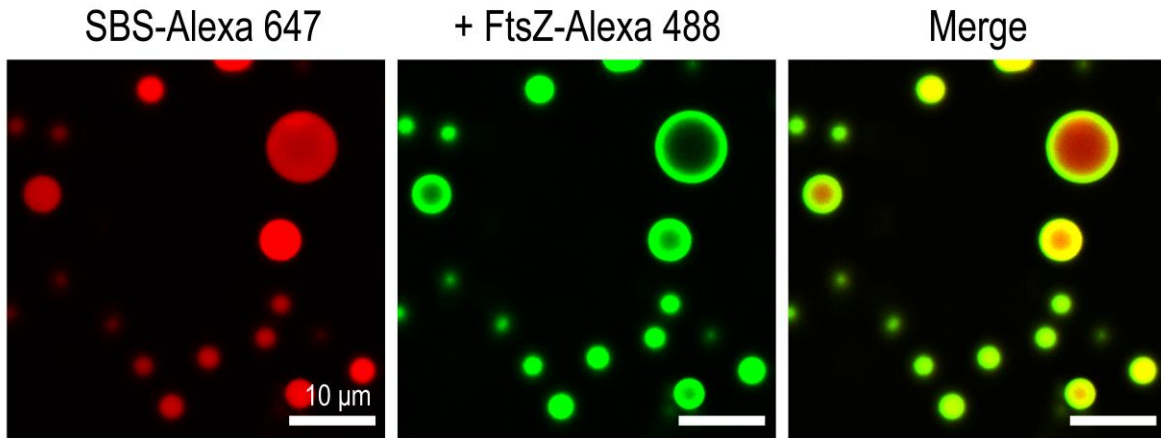


Figure S3. Reduced dynamics of condensates formed in 15 mM Mg^{2+} on a supported lipid bilayer. Fluorescence confocal microscopy images show the addition of FtsZ-Alexa 488 to FtsZ·SlmA·SBS condensates labeled with SBS-Alexa 647 formed in standard conditions but with 15 mM Mg^{2+} instead of 5 mM Mg^{2+} .

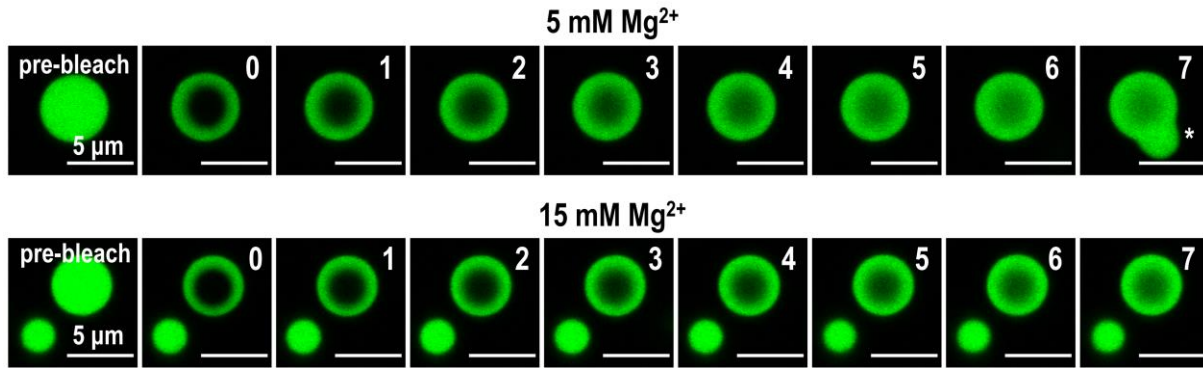


Figure S4. FRAP experiments to monitor the dynamics of the condensates under different conditions. Confocal microscopy images of similarly-sized condensates in standard conditions (top row), and with 15 mM Mg²⁺ (bottom row). Samples contained 0.5 μM FtsZ-Alexa 488. Pre-bleach and recovery images are included. Time in minutes after bleaching is indicated on each image. Bleaching is performed at 60% laser power with 16 iterations, whereas pre-bleach and recovery images are obtained at 10% laser power. Recovery images are obtained every 60 s. Indicated with an asterisk, a fusion event can be observed after 7 minutes in standard conditions (5 mM Mg²⁺), after which images are not included due to fusion events obscuring fluorescence recovery evaluation.

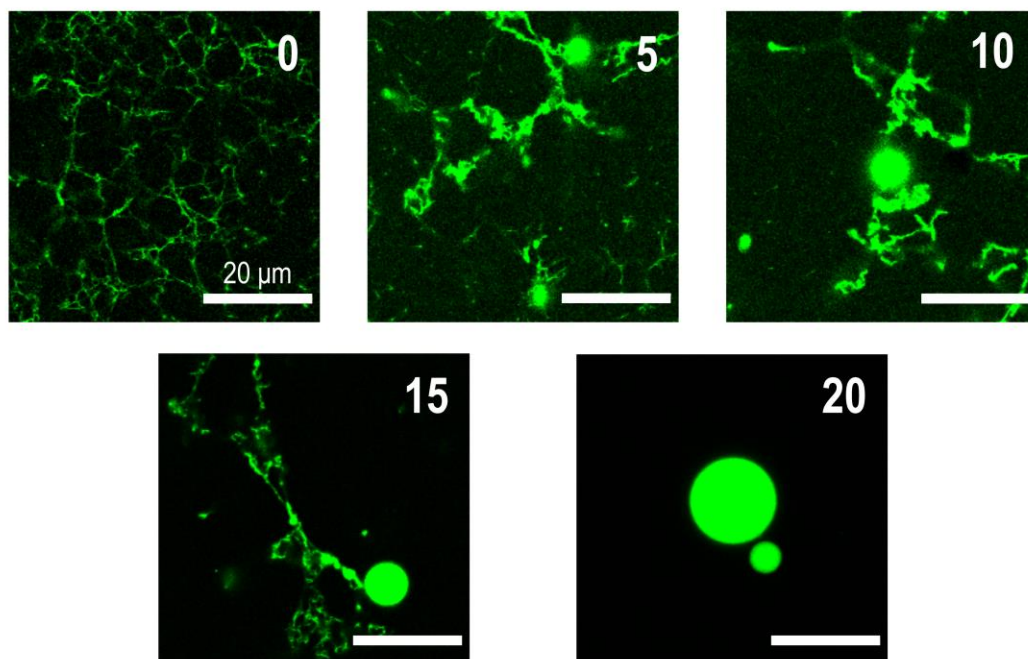


Figure S5. Time-evolution of polymers formed by FtsZ (FtsZ-Alexa 488) in the presence of SBS-bound SlmA and 1 mM GTP on a supported lipid bilayer in standard conditions. Time from FtsZ addition in minutes is indicated. The top row images were acquired with a higher gain to better visualize the polymers, while the bottom row show images acquired with lower gain to better visualize the condensates.