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**Bacillus subtilis matrix protein TasA is interfacially active, but BslA dominates interfacial film properties**

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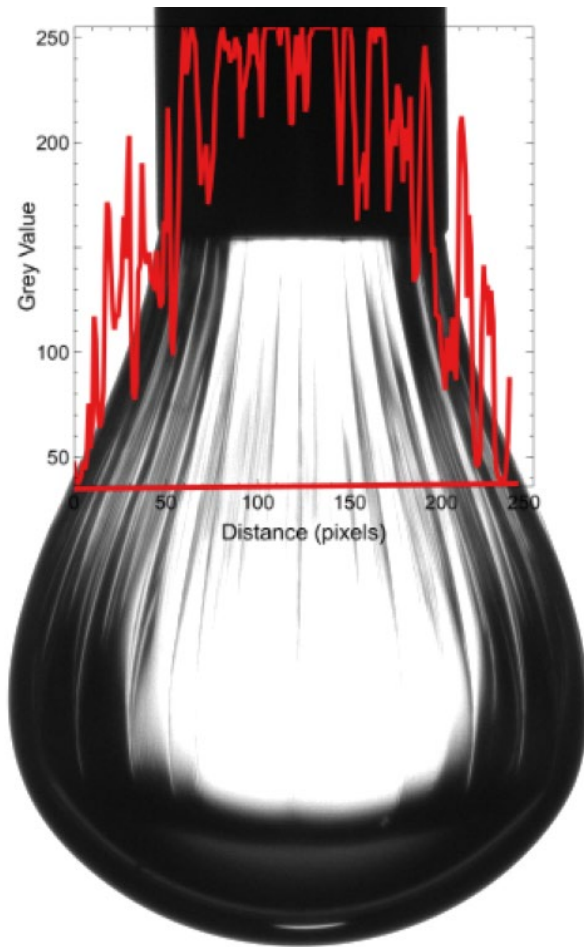
1 **Supplementary Material**

2 **Table S1.** Plasmids used in this study

Name	Description	Reference
pNW1128	pGEX-6P-1 -TEV- <i>bslA</i> (residues 42-182)	(1)
pNW1505	pGEX-6P-1 -TEV- <i>bslA</i> C178A C180A (residues 42-182)	(2)
pNW1437	pGEX-6P-1 -TEV- <i>tasA</i> (residues 29-261)	(3)
pNW1080	pGEX-6P-1 -TEV-Ser- <i>tasA</i> (residues 29-261)	(3)

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7 **Supplemental Figure 1** Diagram of how film relaxation is measured. A line profile (red line across  
8 the middle of the droplet) is drawn and the grey values are obtained (red line on graph). The local  
9 minima of the profile are followed over time. The time that it takes for these minima to become  
10 equal to the background is taken to be the relaxation time.

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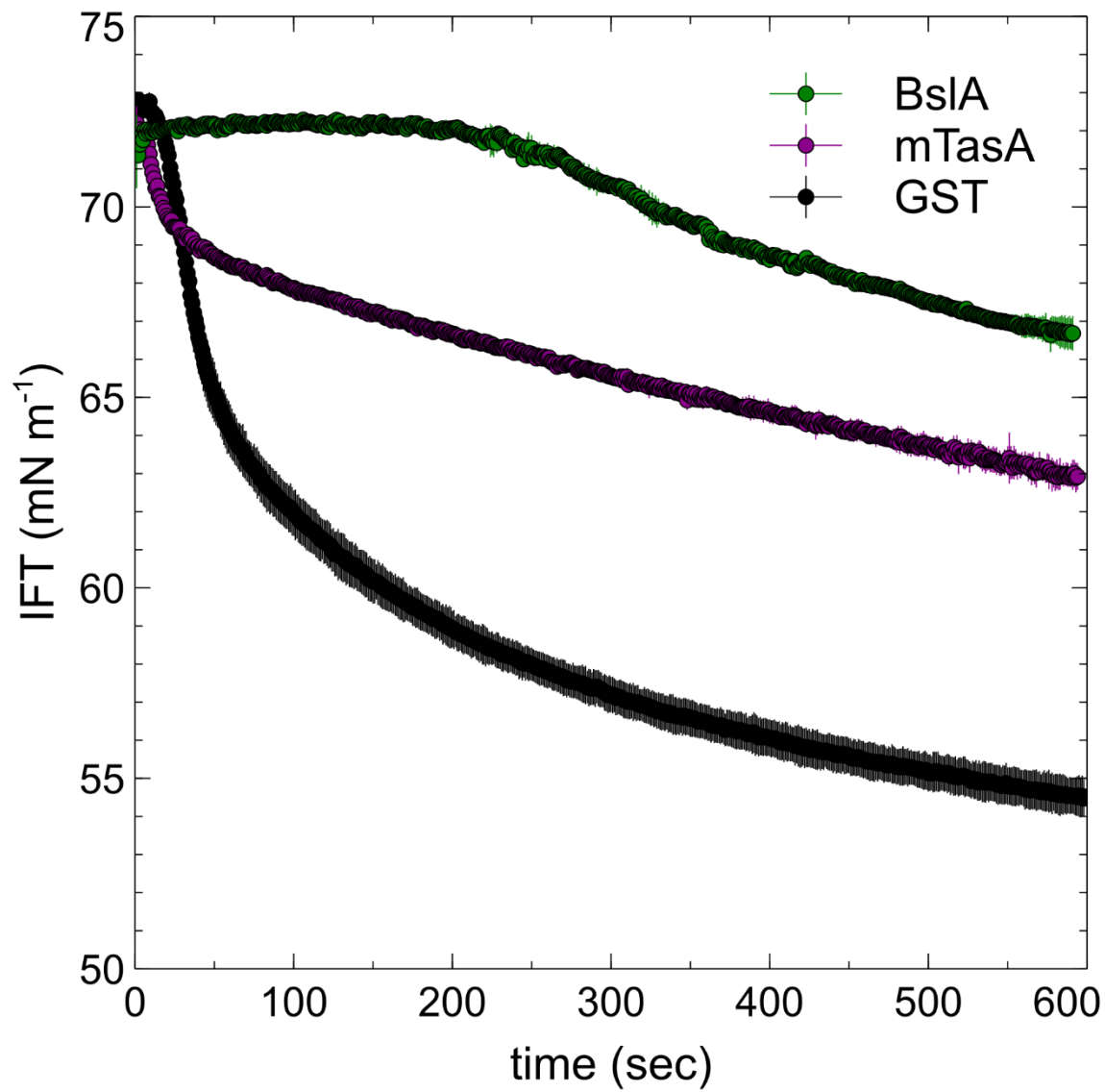
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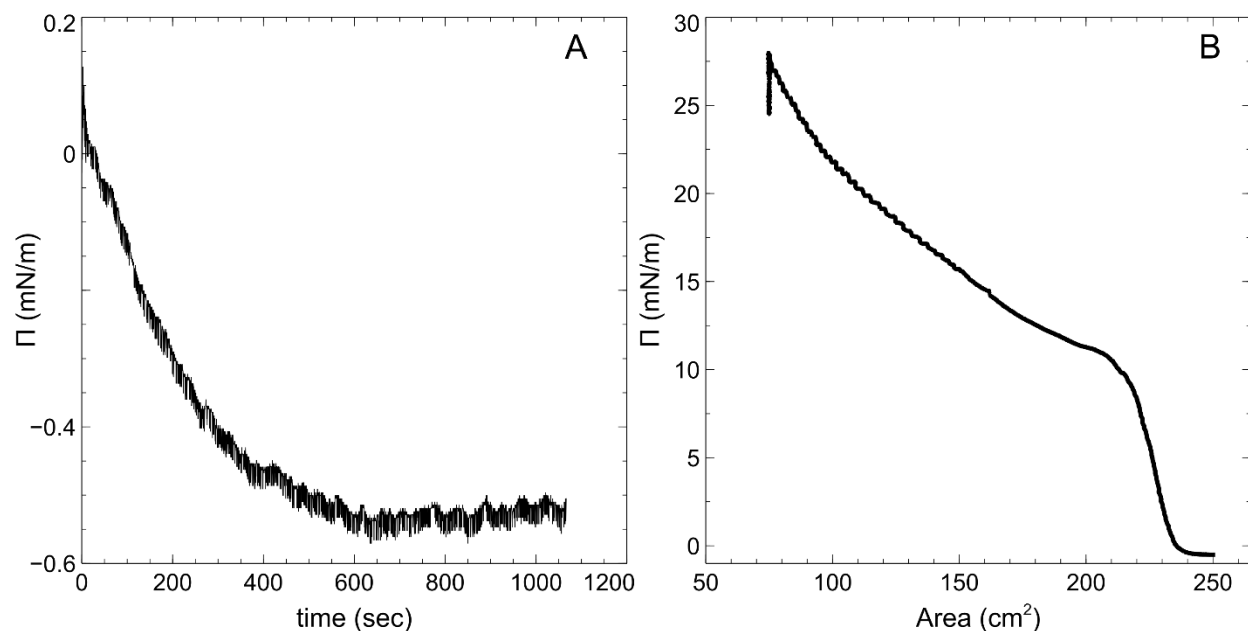


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21 **Supplemental Figure 2** IFT measurements of BslA, mTasA, and GST at an air-water interface.

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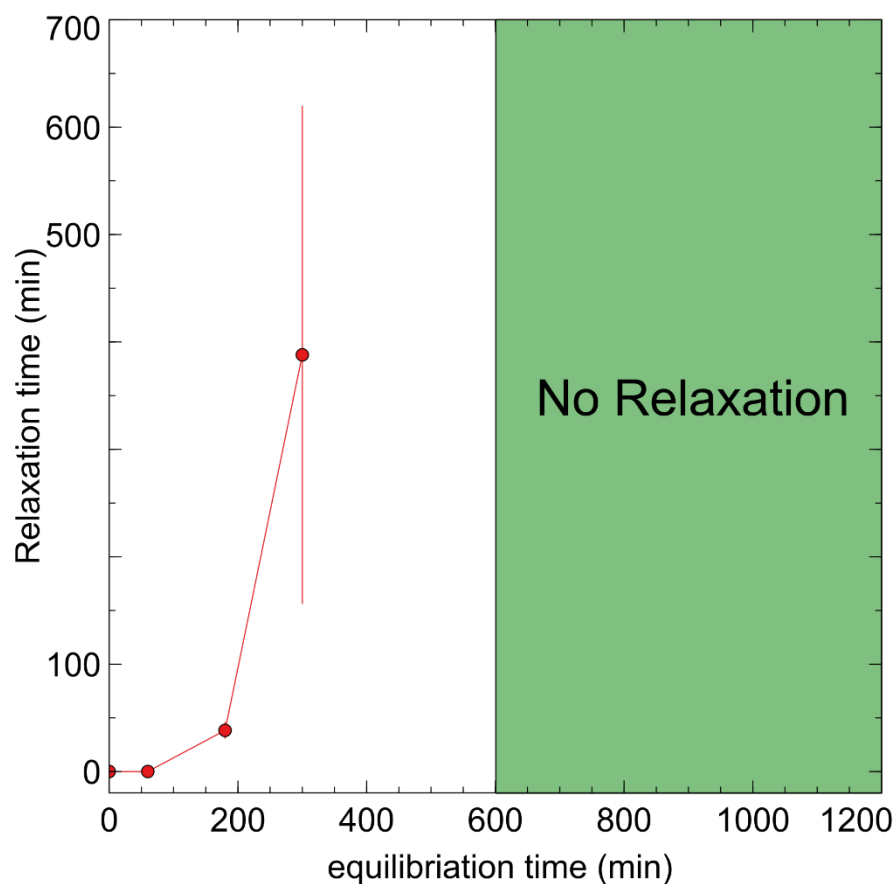


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29 **Supplemental Figure 3** Surface pressure measurement obtained during the BAM imaging in Fig.  
30 5. (A) We observed an initial decrease in the surface pressure. The imaging revealed a continuous  
31 layer of protein within the field of view after 1000s. (B) Immediately after this equilibration we  
32 performed a compression experiment. An initial plateau in the surface pressure indicates that an  
33 entire network may not have been formed across the entire trough by this time point. However,  
34 surface pressures quickly rise until film buckling at approximately 70 cm<sup>2</sup>.

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49 **Supplemental Figure 4.** Film relaxation dynamics as a function of droplet equilibration time. A  
50 40  $\mu\text{L}$  droplet of 0.2 mg/ml BslA solution was expelled into GTO and allowed to equilibrate for  
51 0, 1, 3, 5, 10, and 20 minutes. After the designated equilibration time, 10  $\mu\text{L}$  volume was retracted  
52 to test probe the protein film properties. Three separate droplets for each equilibration time were  
53 imaged. Reported relaxation times correspond to when no wrinkles in the protein film are visible.  
54 For the 10- and 20-minute equilibration times, wrinkles persisted (green region) for the entire  
55 observation window (10 minutes). Relaxation times are the mean and standard deviation of the  
56 three experiments.

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60 **Supplemental Movie 1.** BslA forms a robust interfacial film. A 40  $\mu\text{L}$  droplet of 0.1 mg/ml BslA  
61 is expelled into GTO after 30 minutes of equilibration time. 10  $\mu\text{L}$  volume is withdrawn and  
62 subsequently, long-lived wrinkles form within the elastic BslA interfacial layer. The frame rate is  
63 0.1 frame/s.

64 **Supplemental Movie 2.** mTasA does not form a robust interfacial film. A 40  $\mu\text{L}$  droplet of 0.1  
65 mg/ml mTasA is expelled into GTO after 30 minutes of equilibration time. 10  $\mu\text{L}$  volume is  
66 withdrawn, and it is observed that there is no wrinkling. Additional volumes are withdrawn until  
67 the droplet is very small, at which time a very transiently wrinkled film is observed. The frame  
68 rate is 1 frames/s.

### 69 **Supplemental References**

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