

SUPPLEMENTARY MATERIALS

Supplementary Figure 1. Behavior of GFP-tagged Psy1, a forespore membrane protein, during sporulation in a living fission yeast cell.

Wild-type strain YN68 was cultured on sporulation medium (SSA) at 28 °C for 16 h, stained with Hoechst 33342, a DNA-specific fluorescence dye, and then grown in SSL-N medium. Time-lapse images of living zygote cells were acquired. Frames were taken every 2 min. In merged images, GFP-Psy1 (green) and Hoechst 33342 (magenta) are shown. Bar, 10 µm.

Supplementary Figure 2. Behavior of GFP- or YFP- tagged Psy1 during sporulation in the *spo15* mutant.

spo15Δ strain TN242 which expresses GFP-Psy1 was cultured on sporulation medium (SSA) for 16 h and stained with Hoechst 33342 to allow visualization of chromatin. Frames were taken every 2 min. In merged images, GFP-Psy1 (green) and Hoechst 33342 (magenta) are shown. Bar, 10 µm.

Supplementary Figure 3. Behavior of GFP-tagged Psy1 during sporulation in the *spo14* mutant.

The *spo14* mutant strain TN241 which expresses GFP-Psy1, was cultured on sporulation medium (SSA) for 16 h and stained with Hoechst 33342. GFP-Psy1 and chromatin were then observed. Frames were taken every 2 min. In merged images, GFP-Psy1 (green) and Hoechst 33342 (magenta) are shown. Bar, 10 µm.

Supplementary Movie 1. FSM formation in a wild-type cell (I).

The movie corresponds to the frames shown in Supplementary Figure 1. The movie plays at 5 frames per second. The FSM and nucleus are green and magenta, respectively.

Supplementary Movie 2. FSM formation in a wild-type cell (II).

The movie corresponds to the frames shown in Figure 1. The movie plays at 5 frames per second. The FSM and microtubule are shown in green and red, respectively.

Supplementary Movie 3. FSM formation in the *spo15* mutant.

The movie corresponds to the frames shown in Supplementary Figure 2. The movie plays at 5 frames per second. The FSM and nucleus are shown in green and magenta, respectively.

Supplementary Movie 4. FSM formation in the *spo3Δ* (class I) mutant.

The movie corresponds to the frames shown in Figure 5A. The movie plays at 5 frames per second. The FSM and nucleus are shown by green and magenta, respectively.

Supplementary Movie 5. FSM formation in the *spo3Δ* (class II) mutant.

The movie corresponds to the frames shown in Figure 5B. The movie plays at 5 frames per second. The FSM and nucleus are shown in green and magenta, respectively.

Supplementary Movie 6. FSM formation in the *spo3Δ* mutant.

The movie corresponds to the frames shown in Figure 6. The movie plays at 5 frames per second. The FSM and microtubules are shown in green and red, respectively.

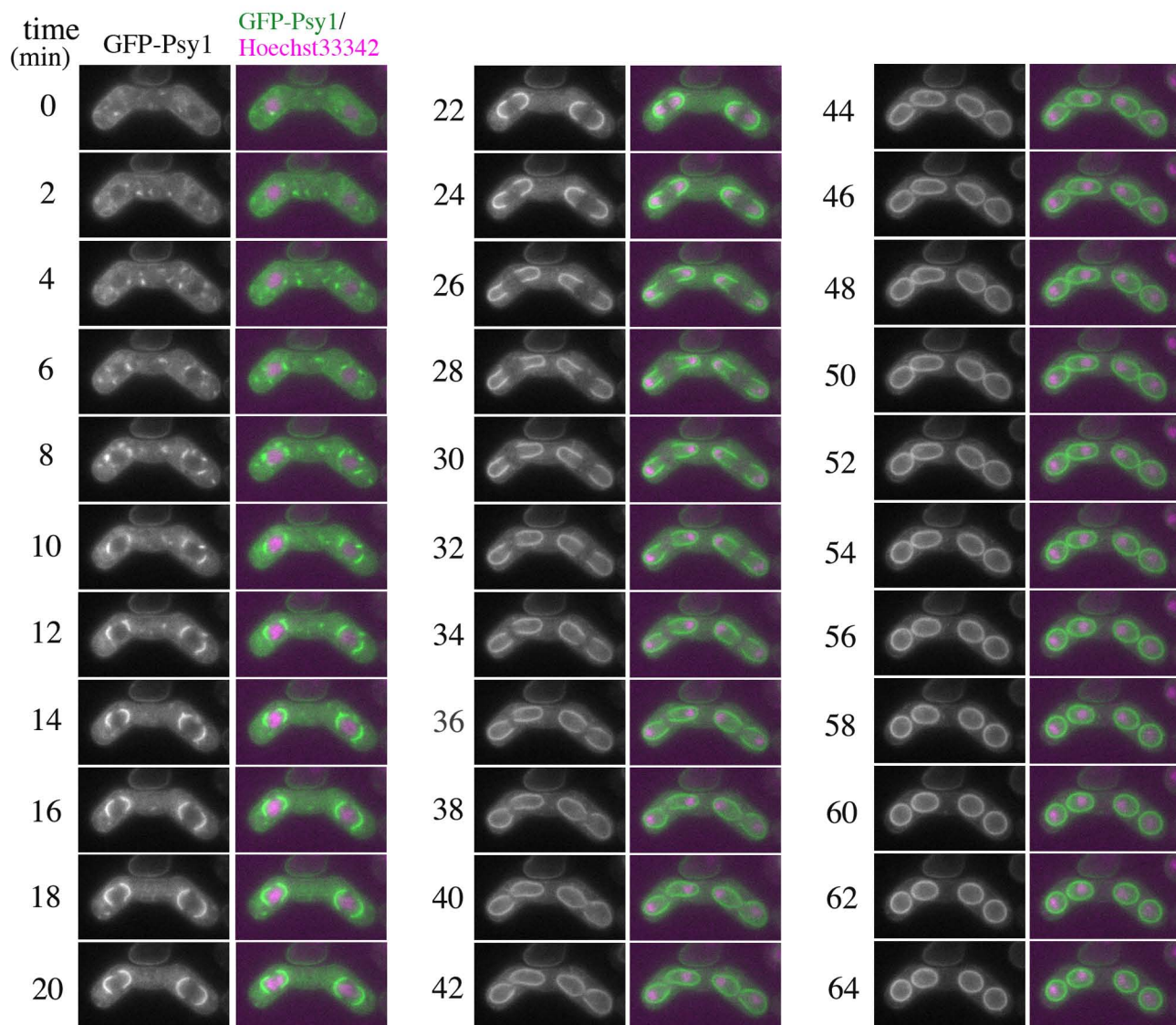
Supplementary Movie 7. FSM formation in the *spo14* mutant (I).

The movie corresponds to the frames shown in Supplementary Figure 3. The movie plays at 5 frames per second. The FSM and nucleus are shown in green and magenta, respectively.

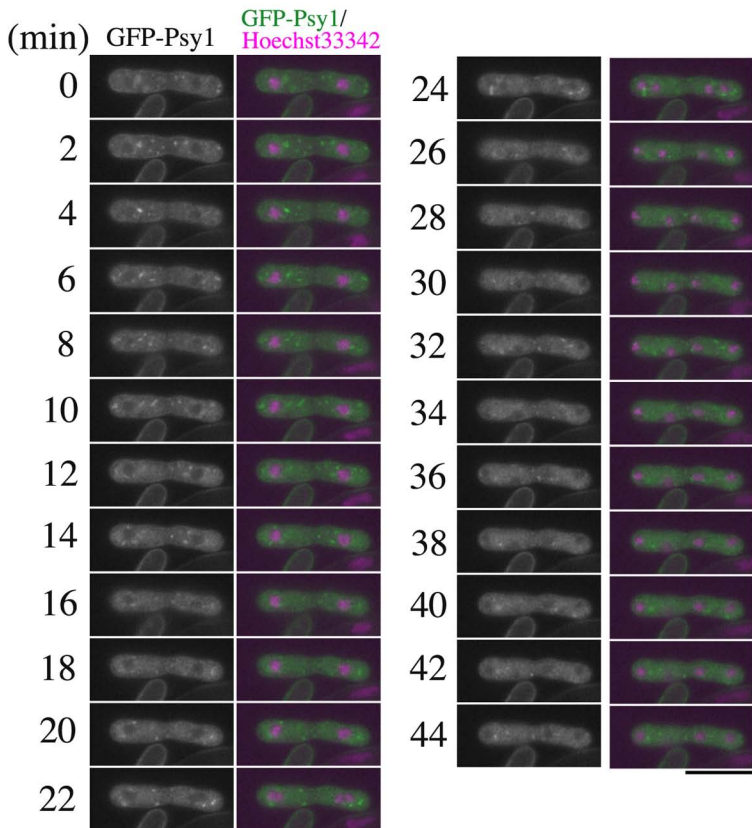
Supplementary Movie 8. FSM formation in the *spo14* mutant (II).

The movie corresponds to the frames shown in Figure 7. The movie plays at 5 frames per second. The FSM and microtubules are shown in green and red, respectively.

Supplementary Figure 1. Nakamura et al.,



Supplementary Figure 2 Nakamura et al.,



Supplementary Figure 3 Nakamura et al.,

