

Description of Additional Supplementary Files:

Supplementary Movie 1: Example of MreB singlemolecule dynamics in wild-type live *B. subtilis* cells imaged via smVerCINI corresponding to leftmost kymograph, Fig 1b. Scale bar, 1 μm .

Supplementary Movie 2: Example of MreB singlemolecule dynamics in wild-type live *B. subtilis* cells imaged via smVerCINI corresponding to rightmost kymograph, Fig 1b. Scale bar, 1 μm .

Supplementary Movie 3: Example of MreB singlemolecule dynamics in wild-type live *B. subtilis* cells imaged via smVerCINI. Scale bar, 1 μm .

Supplementary Movie 4: Example of MreB singlemolecule dynamics in low RodA expression level corresponding to Fig 2a. Scale bar, 1 μm .

Supplementary Movie 5: Example of MreB singlemolecule dynamics in low RodA expression level corresponding to Supplementary Figure 13, top, leftmost kymograph. Scale bar, 1 μm .

Supplementary Movie 6: Example of MreB singlemolecule dynamics in low RodA expression level corresponding to Supplementary Figure 13a, kymograph 2nd from left. Scale bar, 1 μm .

Supplementary Movie 7: Example of MreB singlemolecule dynamics in low RodA expression level corresponding to Supplementary Figure 1, top, kymograph 3rd from left. Scale bar, 1 μm .

Supplementary Movie 8: Example of MreB singlemolecule dynamics in low RodA expression level corresponding to Supplementary Figure 13, top, rightmost kymograph. Scale bar, 1 μm .

Supplementary Movie 9: Example of MreB singlemolecule dynamics in high RodA expression level corresponding to kymograph Fig 2b. Scale bar, 1 μm .

Supplementary Movie 10: Example of MreB singlemolecule dynamics in high RodA expression level corresponding to Supplementary Figure 13, bottom, leftmost kymograph. Scale bar, 1 μm .

Supplementary Movie 11: Example of MreB singlemolecule dynamics in high RodA expression level corresponding to Supplementary Figure 13, bottom, kymograph 2nd from left. Scale bar, 1 μm .

Supplementary Movie 12: Example of MreB singlemolecule dynamics in high RodA expression level corresponding to Supplementary Figure 13, bottom, kymograph 3rd from left. Scale bar, 1 μm .

Supplementary Movie 13: Example of MreB singlemolecule dynamics in high RodA expression level corresponding to Supplementary Figure 13, bottom, rightmost kymograph. Scale bar, 1 μm .