Description of additional supplementary files

File name: Supplementary Data

Description: Contains source data for Fig. 5b in main body of manuscript.

File name: Supplementary Movie 1

Description: Time-lapse movie of BW25113 in the presence of Fos.

Time-lapse movie of the interconversion process between walled cells and L-form cells. BW25113 cells were grown in NB/MSM medium containing Fos under anaerobic conditions. After 12h, Fos was removed from NB/MSM medium. Images were taken every 10 min. Scale bar: 5 μm.

File name: Supplementary Movie 2

Description: Time-lapse movie of Δ*ftsZ* cells in the presence of Fos.

Time-lapse movie of the interconversion process between walled cells and L-form cells. RU2055 cells (Δ*ftsZ::kan*) were grown in NB/MSM medium containing Fos in the absence of NaSal under anaerobic conditions. After 12h, Fos was removed from NB/MSM medium. Images were taken every 10 min. Scale bar: 5 μm.

File name: Supplementary Movie 3

Description: Time-lapse movie of BW25113 in the presence of PenG.

Time-lapse movie of the interconversion process between walled cells and L-form cells. BW25113 cells were grown in NB/MSM medium containing PenG under anaerobic conditions. After 12h, PenG was removed from NB/MSM medium. Images were taken every 10 min. Scale bar: 5 μm.

File name: Supplementary Movie 4

Description: Time-lapse movie of Δ*ftsZ* cells in the presence of PenG.

Time-lapse movie of the interconversion process between walled cells and L-form cells. RU2055 cells (Δ*ftsZ::kan*) were grown in NB/MSM medium containing PenG in the absence of NaSal under anaerobic conditions. After 12h, PenG was removed from NB/MSM medium. Images were taken every 10 min. Scale bar: 5 μm.

File name: Supplementary Movie 5

Description: Time-lapse movie of BW25113 and in the presence of Cef.

Time-lapse movie of the interconversion process between walled cells and L-form cells. BW25113 cells were grown in NB/MSM medium containing Cef under anaerobic conditions. After 12h, Cef was removed from NB/MSM medium. Images were taken every 10 min. Scale bar: 5 μm.

File name: Supplementary Movie 6

Description: Time-lapse movie of Δ*ftsZ* cells and in the presence of Cef.

Time-lapse movie of the interconversion process between walled cells and L-form cells. RU2055 cells (Δ*ftsZ::kan*) were grown in NB/MSM medium containing Cef in the absence of NaSal under anaerobic conditions. After 12h, Cef was removed from NB/MSM medium. Images were taken every 10 min. Scale bar: 5 μm.

File name: Supplementary Movie 7

Description: Time-lapse movie of cell division of L-form cells without medium flow rate in the presence of Fos.

Time-lapse movie of the cell division process in L-form cells without medium flow rate. RU1125 cells (*zapA-sfGFP::cat*) were grown in NB/MSM medium containing Fos under anaerobic conditions. After cell loading using NB/MSM medium containing Fos, the flow rate was set to 0 μL/hr. Images were taken every 10 min. Red arrows indicated cells that divided independently of medium flow. Scale bar: 5 μm.

File name: Supplementary Movie 8

Description: Time-lapse movie of ZapA-GFP cells in the presence of Fos.

Time-lapse movie of the interconversion process between walled cells and L-form cells. RU1125 cells (*zapA-sfGFP::cat*) were grown in NB/MSM medium containing Fos under anaerobic conditions. After 12h, Fos was removed from NB/MSM medium. Images were taken every 10 min. Scale bar: 5 μm.

File name: Supplementary Movie 9

Description: Time-lapse movie of Δ*ftsZ* ZapA-GFP cells in the presence of Fos.

Time-lapse movie of Z-ring reconstruction process in L-form cells. RU2057 cells (Δ*ftsZ::kan zapA-sfGFP*) were grown in NB/MSM medium containing Fos under anaerobic conditions. After 12h, 10 μM NaSal was added in NB/MSM medium. Images were taken every 10 min. Scale bar: 5 μm.

File name: Supplementary Movie 10

Description: ZapA-GFP in L-forms.

The z-stacks of deconvolved images of ZapA-GFP in L-forms.

File name: Supplementary Movie 11

Description: Time-lapse movie of ZapA-GFP cells in the presence of Mec or Azt.

Time-lapse movie of the morphological change process containing only Mec or Azt. RU1125 cells (*zapA-sfGFP::cat*) were grown in NB/MSM medium containing Mec (left panel) or Azt (right panel) under anaerobic conditions. Images were taken every 10 min. Scale bar: 5 μm.

File name: Supplementary Movie 12

Description: Time-lapse movie of ZapA-GFP cells in the presence of Fos, Mec and Azt.

Time-lapse movie of the interconversion process between walled cells and L-form cells. RU1125 cells (*zapA-sfGFP::cat*) were grown in NB/MSM medium containing Fos, Mec and Azt under anaerobic conditions. After 12h, Fos (left panel), Mec (center panel) and Azt (right panel) was removed from NB/MSM medium. Images were taken every 10 min. Scale bar: 5 μm.

File name: Supplementary Movie 13

Description: Time-lapse movie of ZapA-GFP cells conversion to SWE cells from L-form cells.

Time-lapse movie showing the process of conversion to L-form cells and SWE cells. RU1125 cells (*zapA-sfGFP::cat*) were grown in NB/MSM medium containing Fos, Mec and Azt under anaerobic conditions. After 12h, Fos and Mec were removed from NB/MSM medium. Images were taken every 10 min. Scale bar: 5 μm.

File name: Supplementary Movie 14

Description: Time-lapse movie of ZapA-GFP cells conversion to SWD cells from L-form cells.

Time-lapse movie showing the process of conversion to L-form cells and SWD cells. RU1125 cells (*zapA-sfGFP::cat*) were grown in NB/MSM medium containing Fos, Mec and Azt under anaerobic conditions. After 12h, Fos and Azt were removed from NB/MSM medium. Images were taken every 10 min. Scale bar: 5 μm.

File name: Supplementary Movie 15

Description: Time-lapse movie of GFP-FtsN^{SPOR} expressed cells conversion to SWD cells from L-form cells.

Time-lapse movie showing the process of conversion to L-form cells and SWD cells.

RU2452 (*zapA-mCherry*) cells producing GFP-FtsN^{SPOR} grown in NB/MSM medium containing Fos, Mec and Azt. After 12 h, Fos and Azt were removed from the NB/MSM medium. After

16h, the growth conditions were changed from anaerobic to aerobic. Images were taken every 10 min. Scale bar: 5 μm

File name: Supplementary Movie 16

Description: Time-lapse movie of Δ*minC* Δ*slmA* cells in the presence of Mec.

Time-lapse movie of the interconversion process between walled cells and L-form cells. RU2409 cells (*zapA-sfGFP hupB-mCherry* Δ*minC* Δ*slmA::kan*) were grown in NB/MSM medium under anaerobic conditions containing Fos, Mec and Azt. After 12h, Fos and Azt were removed from NB/MSM medium. Images were taken every 10 min. Scale bar: 5 μm.

File name: Supplementary Movie 17

Description: Time-lapse movie of Δ*minC* Δ*slmA* cells conversion to walled cells from L-form cells.

Time-lapse movie showing the process of conversion to L-form cells and SWD cells. RU2409 cells (*zapA-sfGFP hupB-mCherry* Δ*minC* Δ*slmA::kan*) were grown in NB/MSM medium under anaerobic conditions containing Fos, Mec and Azt. After 12h, Fos, Mec and Azt were removed from NB/MSM medium. Images were taken every 10 min. Scale bar: 5 μm.