

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: **Time-lapse atomic force microscopy (AFM) of *M. smegmatis* growth and division.** Time-lapse AFM height (3D) movie with the error channel overlaid as a skin reveals pole elongation and the spatial localization of nanostructures apparent at the cell surface.

File Name: Supplementary Movie 2

Description: **Correlated phase-contrast and fluorescence time-lapse microscopy of *M. smegmatis* expressing Wag31-GFP.** Scale bar, 5 μm .

File Name: Supplementary Movie 3

Description: **Correlated phase-contrast and fluorescence time-lapse microscopy of *M. smegmatis* expressing Wag31-Dendra2 before (green) and after (red) UV-induced photo-conversion.** Scale bar, 10 μm .