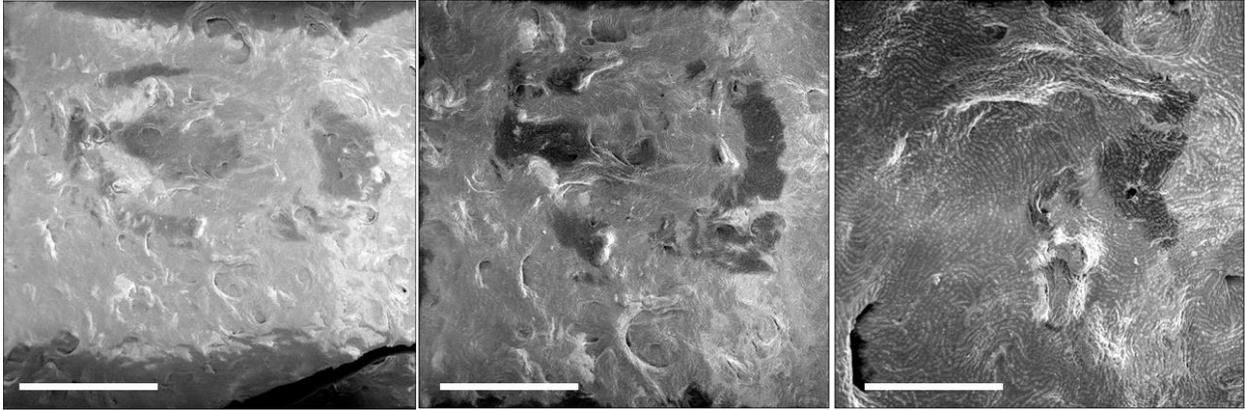


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Supplementary figure S1

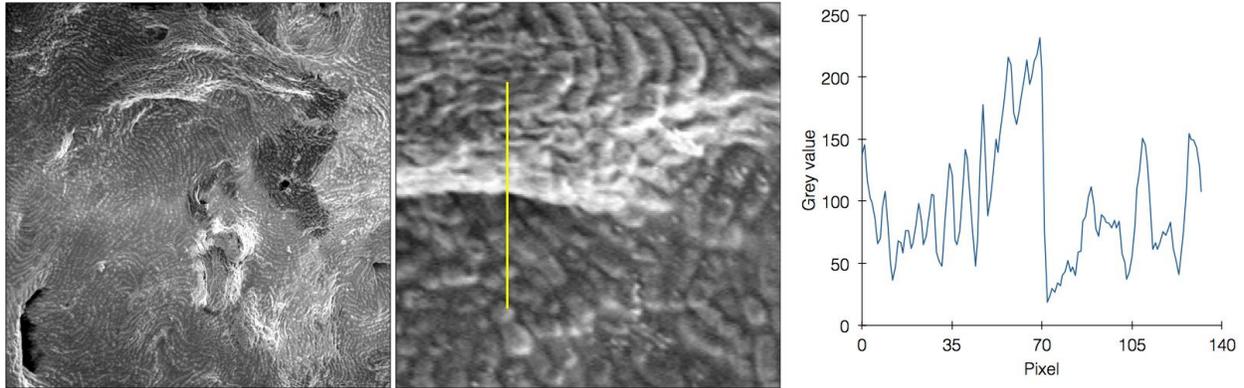


Supplementary figure S1. Large and small scale topography of *B. subtilis* biofilm imaged by native SEM. Scale bars, left = [80 μm], middle = [50 μm], right = [20 μm].

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Supplementary figure S2

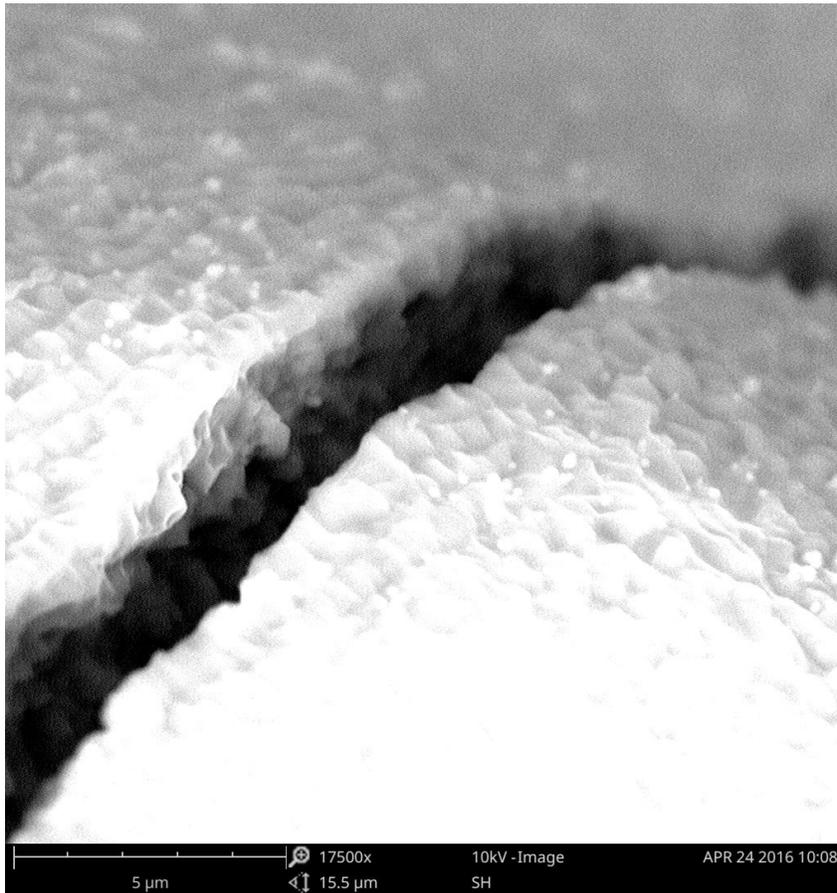


Supplementary figure S2. Visualizing and measuring biofilm topography in native SEM. Left, biofilm image acquired by native SEM (**Fig. S1 right**). Middle: magnified segment with yellow line drawn for profile plot. Right, profile plot from middle segment, showing section topography of middle image.

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Supplementary figure S3

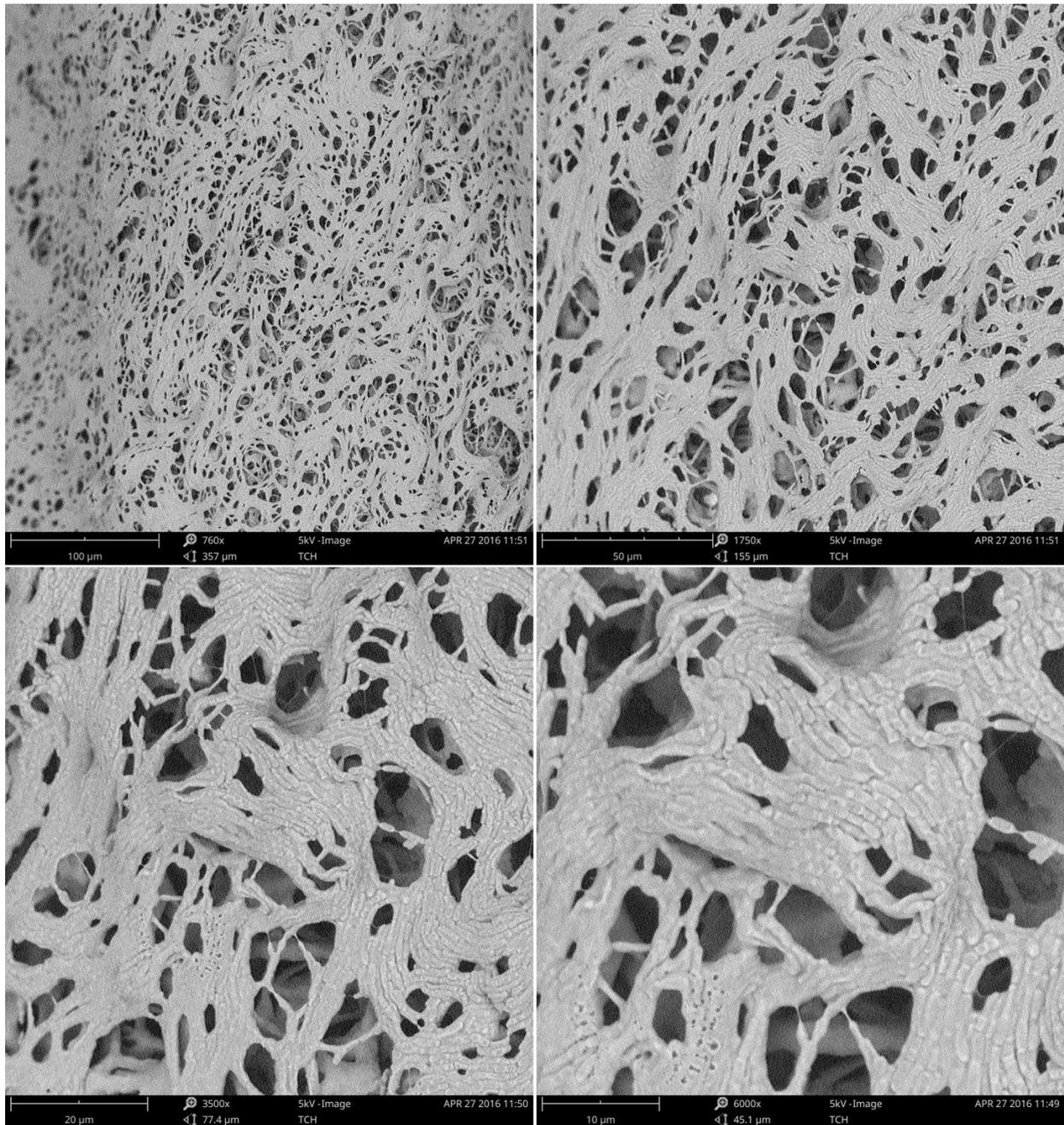


Supplementary figure S3. Visualization of both surface and section of mechanically-torn biofilm. Scale bar = [5 μm].

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Supplementary figure S4

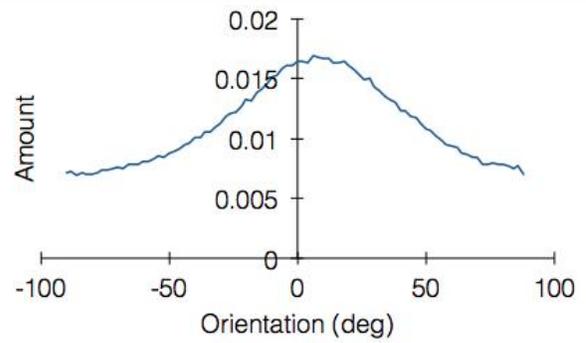
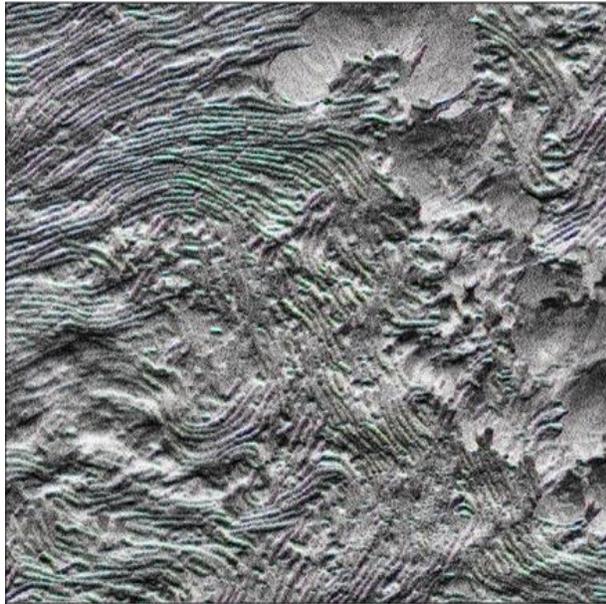


Supplementary figure S4. Sample damage caused by inappropriate freezing.

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Supplementary figure S5

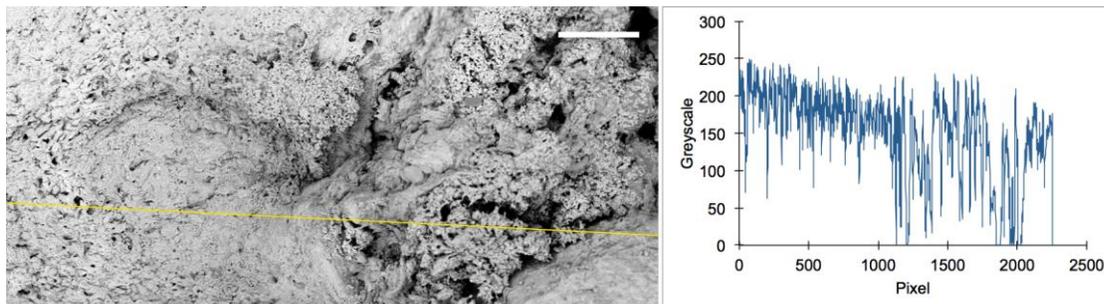


Supplementary figure S5. Directionality analysis performed on bacterial chains imaged at -25 °C (**Fig. 4**). Right graph is a histogram of identified solid bodies at various orientation angles and their counts.

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Supplementary figure S6



Supplementary figure S6. Native SEM imaging of human liver tissue with tumor. A 1.0 mm thick slice from human liver tissue surgically removed (for purposes of tumor removal) was fixed in 4% paraformaldehyde at room temperature for 20 minutes, then placed on SEM stub, dried in desiccator for 30 minutes, and visualized in SEM. Scale bar, 200 μ m. Yellow line represents profile plot and grayscale levels along the profile are shown on the right graph, which clearly shows two distinct tissues (normal and malignant) and the border between them.