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Article

Use of NanoSIMS to Identify the Lower Limits of Metabolic Activity and Growth by *Serratia liquefaciens* Exposed to Sub-zero Temperatures

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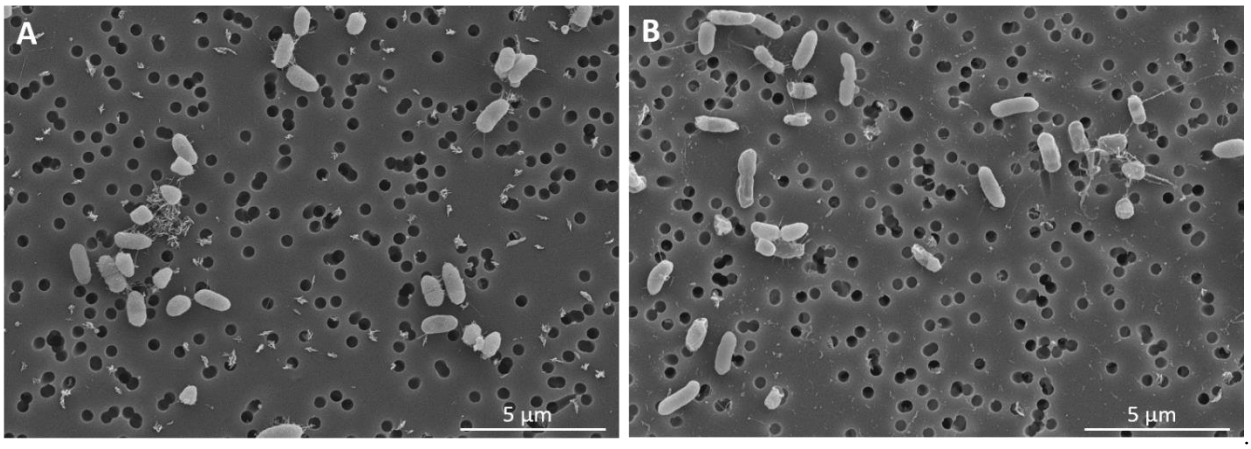

Figure S1. Examples of scanning electron microscopy (SEM) images of *Serratia liquefaciens* incubated in labeled Spizizen medium for 35 days at 0°C (**A**) and –5°C (**B**).

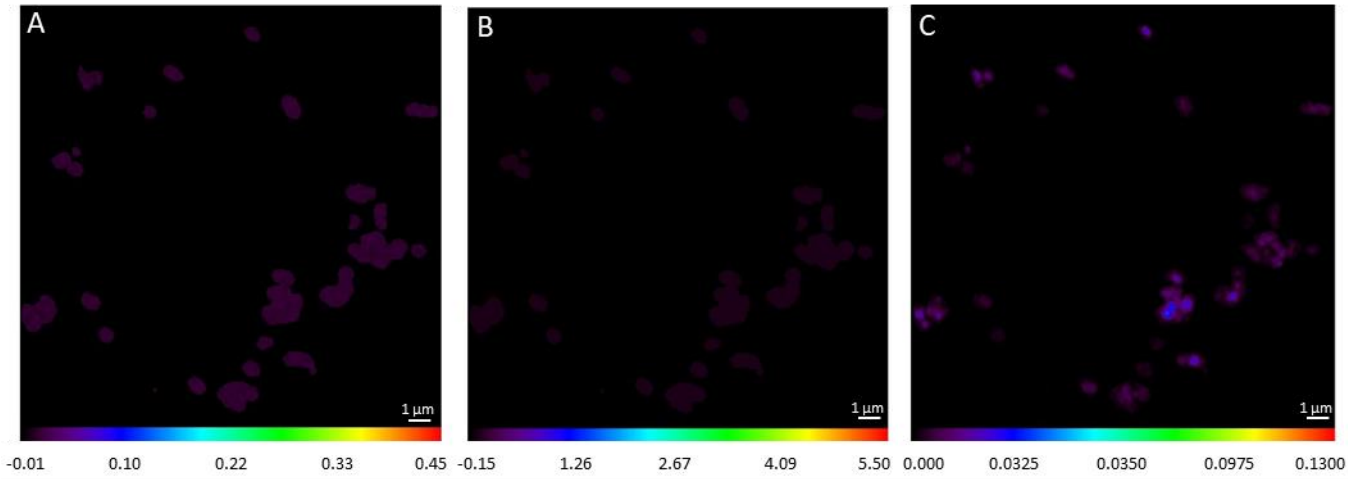

Figure S2. NanoSIMS isotopic ratio images of *Serratia liquefaciens* cells incubated for 35 days in 0°C in unlabeled Spizizen medium. (**A**) $^{13}C/^{12}C$, (**B**) $^{15}N/^{14}N$, and (**C**) $^{18}O/^{16}O$.

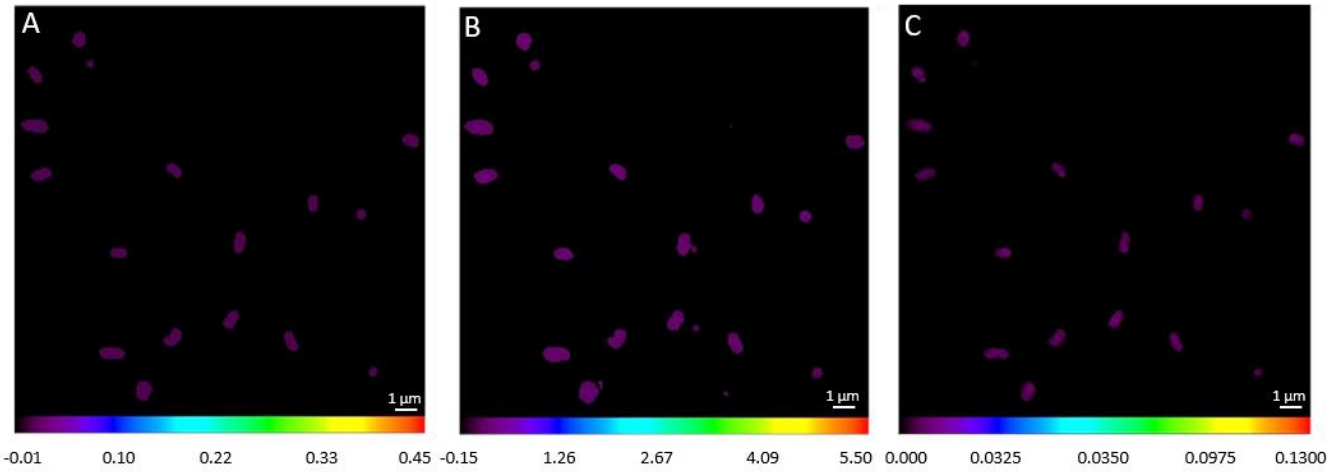

Figure S3: NanoSIMS isotope ratio images of UV-killed *S. liquefaciens* cells incubated for 35 days in 0 °C in labeled Spizizen medium with (A) $^{13}C/^{12}C$, (B) $^{15}N/^{14}N$, and (C) $^{18}O/^{16}O$.