

Supporting Video Captions

SI Video 1. Gradients of concentration and velocity in the nanoporous microfluidic channel. Flow characteristics of the developed microfluidic device showing 5 μm of fluorescein solution flowing at 10 $\mu\text{L/hr}$ in the left feeder channel, and 10 $\mu\text{L/hr}$ of PBS buffer solution flowing in the right feeder channel. The diffusion occurs through the nanopores as the fluorescein molecules mix with the standing PBS solution in the middle bacteria swimming channel. Video acquisition settings include the exposure time for fluorescence imaging of 0.953 s, gain 1.99 and 15 fps.

SI Video 2. Time-lapse microscopy showing the motility of *Listeria monocytogenes* strain MMB 17 in the absence (baseline) of 100 mM acetic acid at 25°C.

SI Video 3. Time-lapse microscopy showing the motility of *Listeria monocytogenes* strain MMB 17 in the presence of 100 mM acetic acid at 25°C.