

Supplementary Materials

A monolithic microfluidic probe for ambient mass spectrometry imaging of biological tissues

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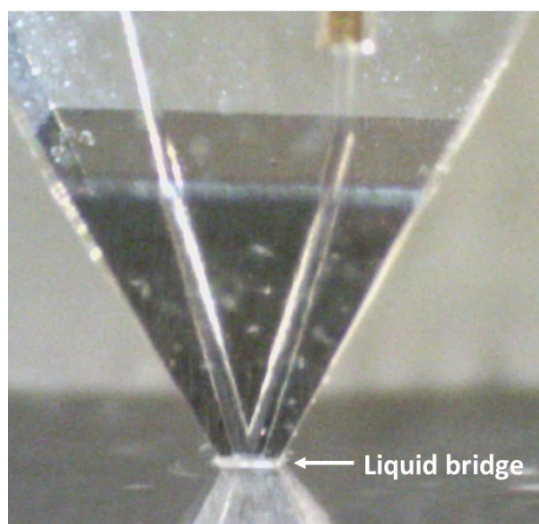
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No polishing



Polished

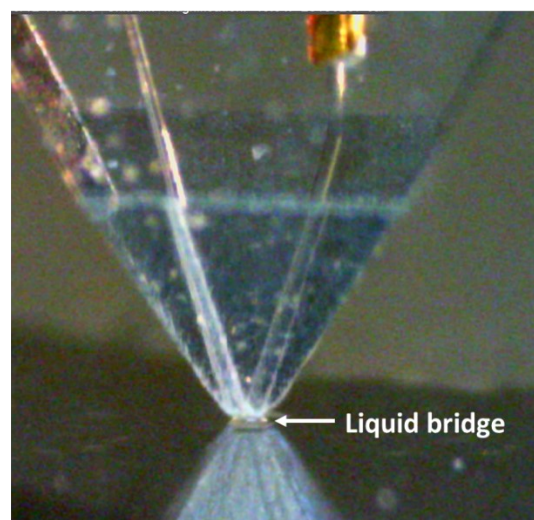


Figure S1. Photographs of the liquid bridge generated by first generation SLE-MFP before and after polishing the sampling port.

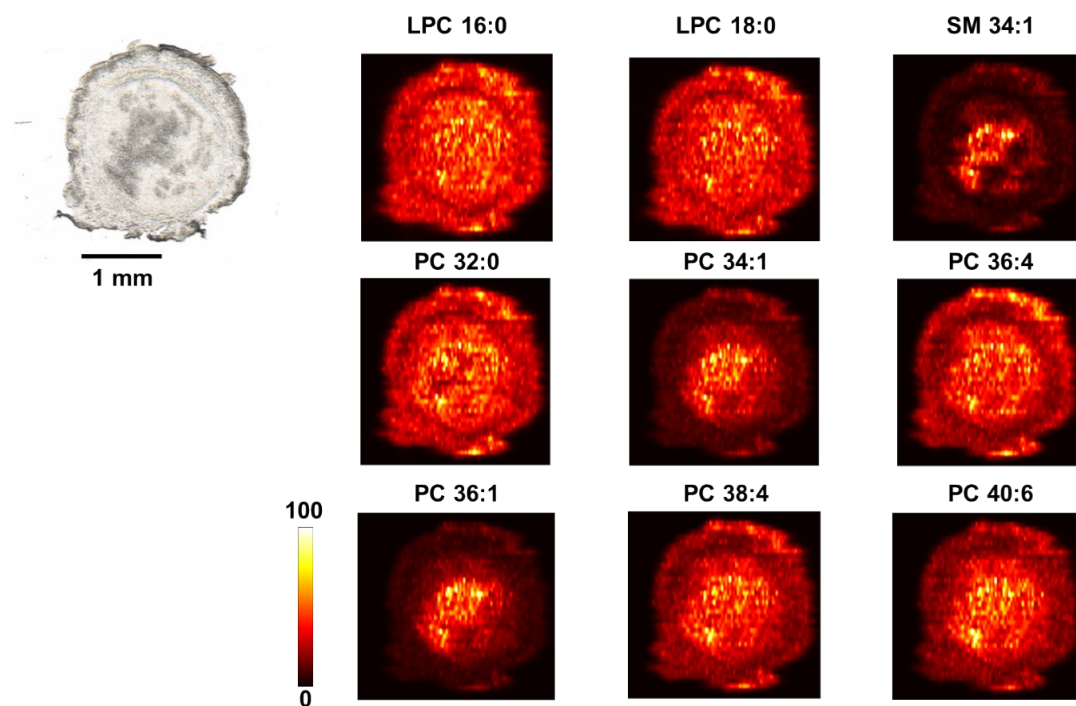


Figure S2. Optical and representative positive mode ion images of $[M+Na]^+$ ions of phospholipids in mouse uterine tissues obtained using SLE-MFP. Scale bar: 1 mm; the intensity scale: black (low), yellow (high). The scan rate is $250 \mu\text{m/s}$ and the step between lines is $60 \mu\text{m}$. The acquisition rate of MS is 10 Hz. The ion images are normalized to the internal standard.

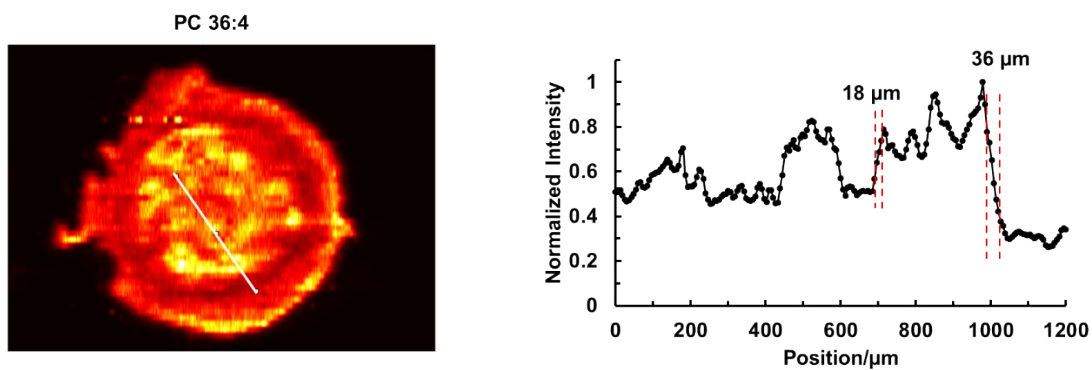


Figure S3. The spatial resolution of V-shaped SLE-MFP nano-DESI MSI determined using the “20-80 rule”. Left: the ion image of $[\text{PC } 36:4 + \text{Na}]^+$ with the line scan shown in white. Right: Signal profile along the line scan. The gradient used to estimate the spatial resolution is shown with dashed red lines.

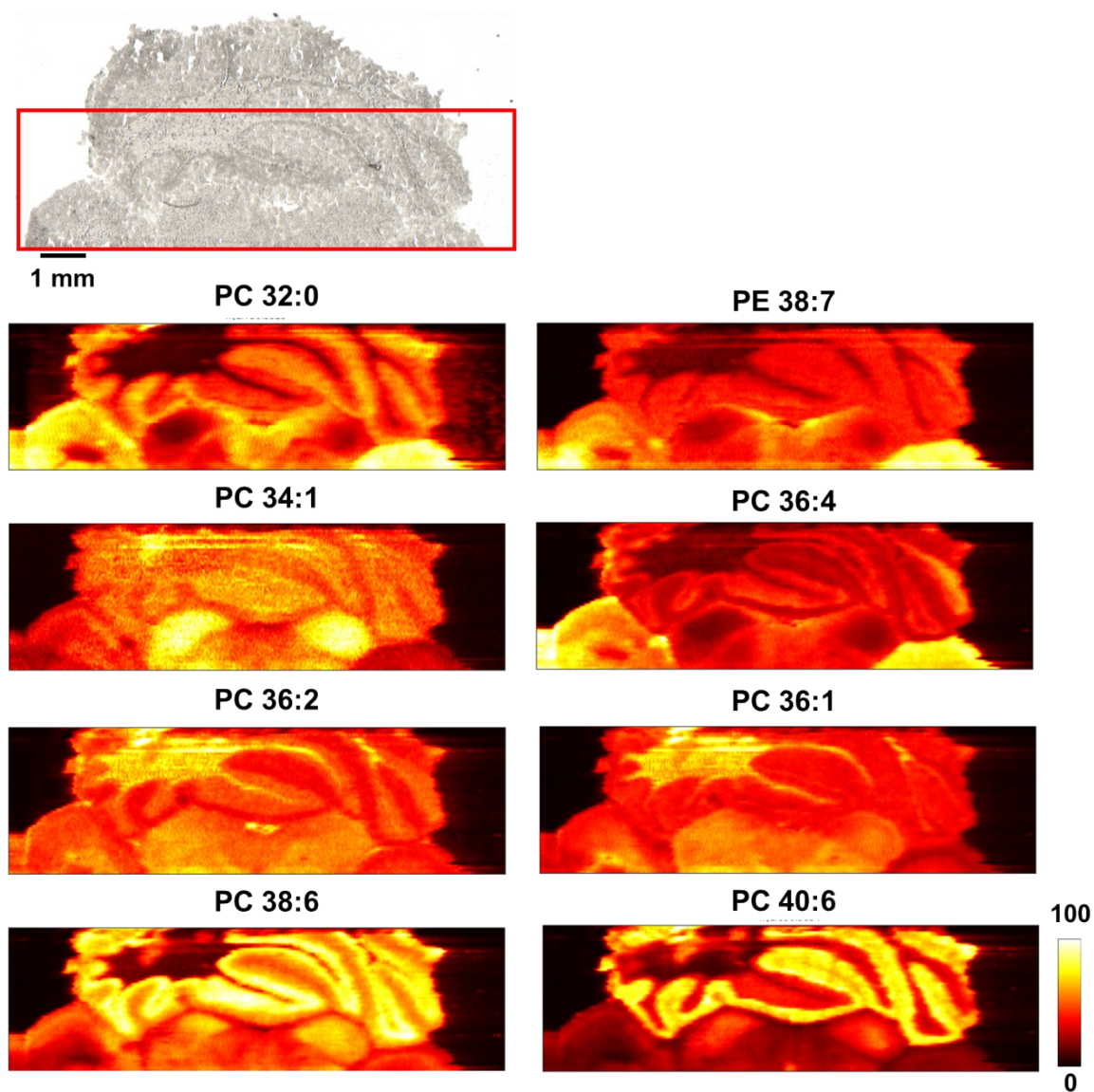


Figure S4. Optical image and representative positive ion images of $[M+Na]^+$ ions of molecules in mouse brain tissue obtained using the V-shape SLE-MFP. The imaged sample area is marked with a red box as shown in the optical image. Scale bar: 1 mm; the intensity scale: black (low), yellow (high). The scan rate is $200 \mu\text{m/s}$ and the step between lines is $50 \mu\text{m}$. The acquisition rate of MS is 10 Hz. The ion images are normalized to the TIC.