

Supporting information

Electrostatic Spray Ionization Mass Spectrometry Imaging

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Figure SI-1.

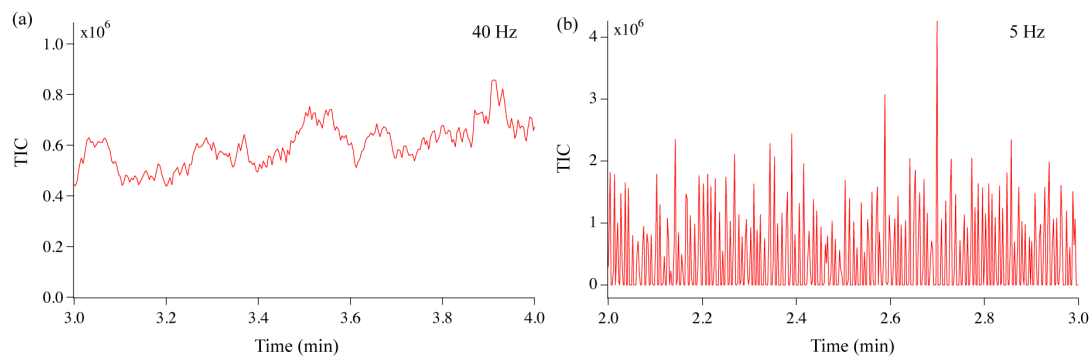


Figure SI-1. (a) ESTASI MS signal of 15 μM Ang I in 50% methanol, 49% water and 1% acetic acid obtained under a frequency of the square wave high voltage (0 to 9 kV) as 40; (b) ESTASI MS signal of 15 μM Ang I in 50% methanol, 49% water and 1% acetic acid obtained under a frequency of the square wave high voltage (0 to 9 kV) as 5. The analyte was delivered by a fused silica capillary under a flow rate of 60 $\mu\text{L}/\text{h}$. TIC – Total Ion Current chromatogram.

Figure SI-2.

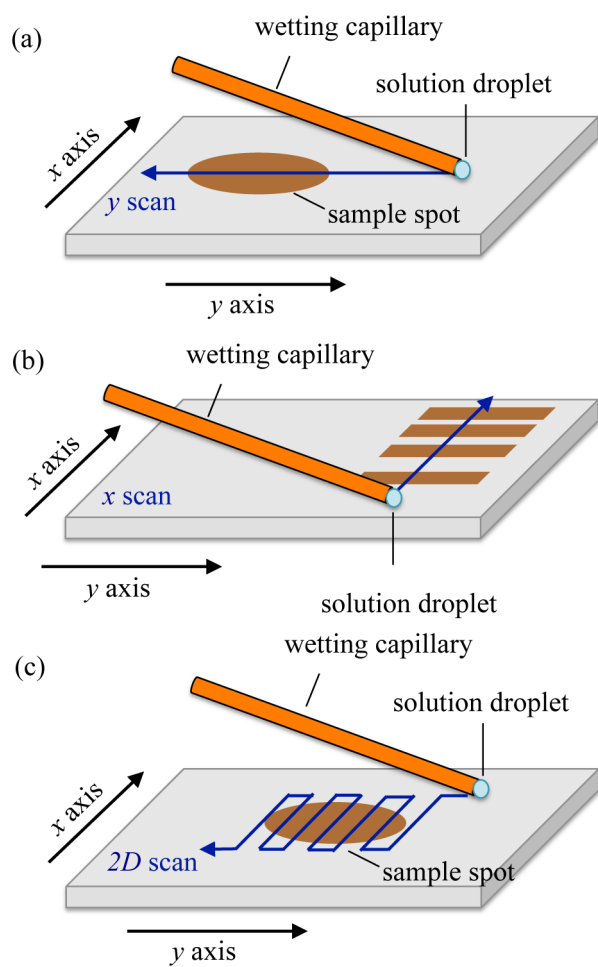


Figure SI-2. Schematic representation of the relative wetting capillary movements with respect to the moving substrate in ESTASI MSI for (a) *x* line scan, (b) *y* line scan and (c) 2D imaging.

Figure SI-3.

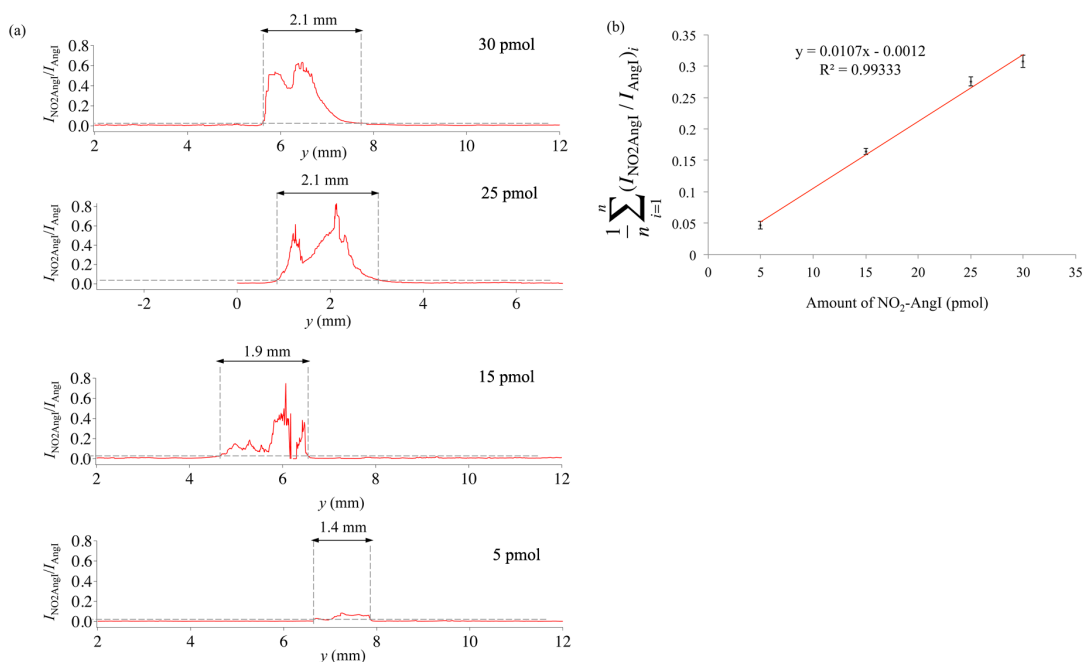


Figure SI-3. (a) ESTASI MSI line scans over NO_2 -Ang I spots (2 mm in diameter) with various sample amounts as indicated on the figures. (b) The averaged relative peak intensity of NO_2 -Ang I within the 2 mm sample spots regions as a function of the amount of NO_2 -Ang I in the sample spots. Error bar shows the standard deviation calculated from three experiments. The NO_2 -Ang I spots were dried from droplets of NO_2 -Ang I (1 μ L) in methanol. The S/N ratio in the labelled region in Figure SI-3(a) is bigger than 3. I_{NO_2AngI} : integrated ion current from m/z 448.0 to m/z 449.0; I_{AngI} : integrated ion current from m/z 433.0 to m/z 434.0. Solution in the wetting capillary 1: Ang I (15 μ M) in 50% methanol, 49% water and 1% HAc. Experimental conditions: solution flow rate 60 μ L/h, step size 50 μ m, delay time 1s and translation rate 5 mm/s.

Figure SI-4.

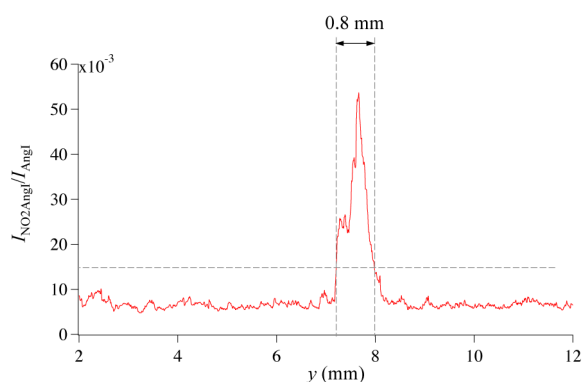


Figure SI-4. ESTASI MSI line scan over a NO₂-Ang I spot. The NO₂-Ang I spot was dried from a droplet of NO₂-Ang I (1 μL , 2 μM) in methanol. The S/N ratio in the labelled region is bigger than 3. $I_{\text{NO}_2\text{AngI}}$: integrated ion current from m/z 448.0 to m/z 449.0; I_{AngI} : integrated ion current from m/z 433.0 to m/z 434.0. Solution in the wetting capillary 1: Ang I (15 μM) in 50% methanol, 49% water and 1% HAC. Experimental conditions: solution flow rate 60 $\mu\text{L}/\text{h}$, step size 50 μm , delay time 1s and translation rate 5 mm/s.

Figure SI-5.

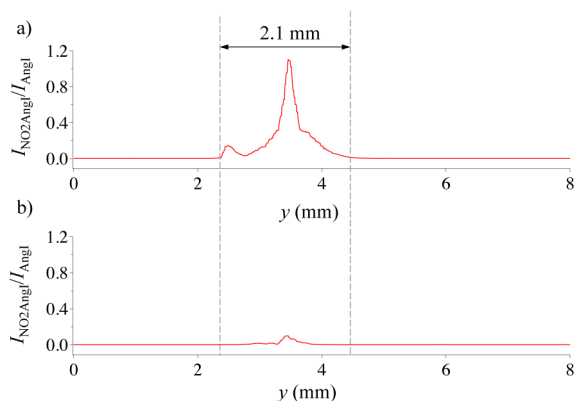


Figure SI-5. (a) ESTASI MSI line scan over a sample spot containing 25 pmole of NO_2 -Ang I and 1 nmole of NaCl. (b) ESTASI MSI line scan over a sample spot containing 25 pmole of NO_2 -Ang I and 10 nmole of NaCl. The labelled region in Figure SI-5(a) has S/N bigger than 3, while the region in Figure SI-5(b) is used for comparison. The NO_2 -Ang I spots were dried from droplets (1 μL) of NO_2 -Ang I and NaCl in methanol. $I_{\text{NO}_2\text{AngI}}$: integrated ion current from m/z 448.0 to m/z 449.0; I_{AngI} : integrated ion current from m/z 433.0 to m/z 434.0. Solution in the wetting capillary 1: Ang I (15 μM) in 50% methanol, 49% water and 1% HAc. Experimental conditions: solution flow rate 60 $\mu\text{L}/\text{h}$, step size 50 μm , delay time 1s and translation rate 5 mm/s.