

Mass spectrometry imaging as a novel approach to measure hippocampal zinc

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In this Supporting Information, we present a table indicating the list of related zinc species and also isotopic pattern of $[\text{ZnOH}_3]^+$ as well as representative ToF-SIMS mass spectrum including species of m/z 82.9, isotopic pattern of $[\text{ZnO}_2\text{H}]^+$ along with mass spectrum containing m/z 96.9. optical microscopy images of freeze-dried rat hippocampus sections, overlay of $\text{C}_5\text{H}_{15}\text{PNO}_4^+$ and $\text{C}_{27}\text{H}_{45}^+$ signals ion image of $[\text{ZnO}_2\text{H}]^+$ species and total ion image of different selected ROI on hippocampus sections in control and traumatic brain injured rat.

| m/z | Species |
|------------|----------------------------|
| 77.9 | $[\text{CH}_2\text{Zn}]^+$ |
| 78.9 | $[\text{CH}_3\text{Zn}]^+$ |
| 79.9 | $[\text{ZnO}]^+$ |
| 82.9 | $[\text{ZnOH}_3]^+$ |
| 96.9 | $[\text{ZnO}_2\text{H}]^+$ |

Table S1. List of related zinc species found in peak search function in Surface Lab 6.3.

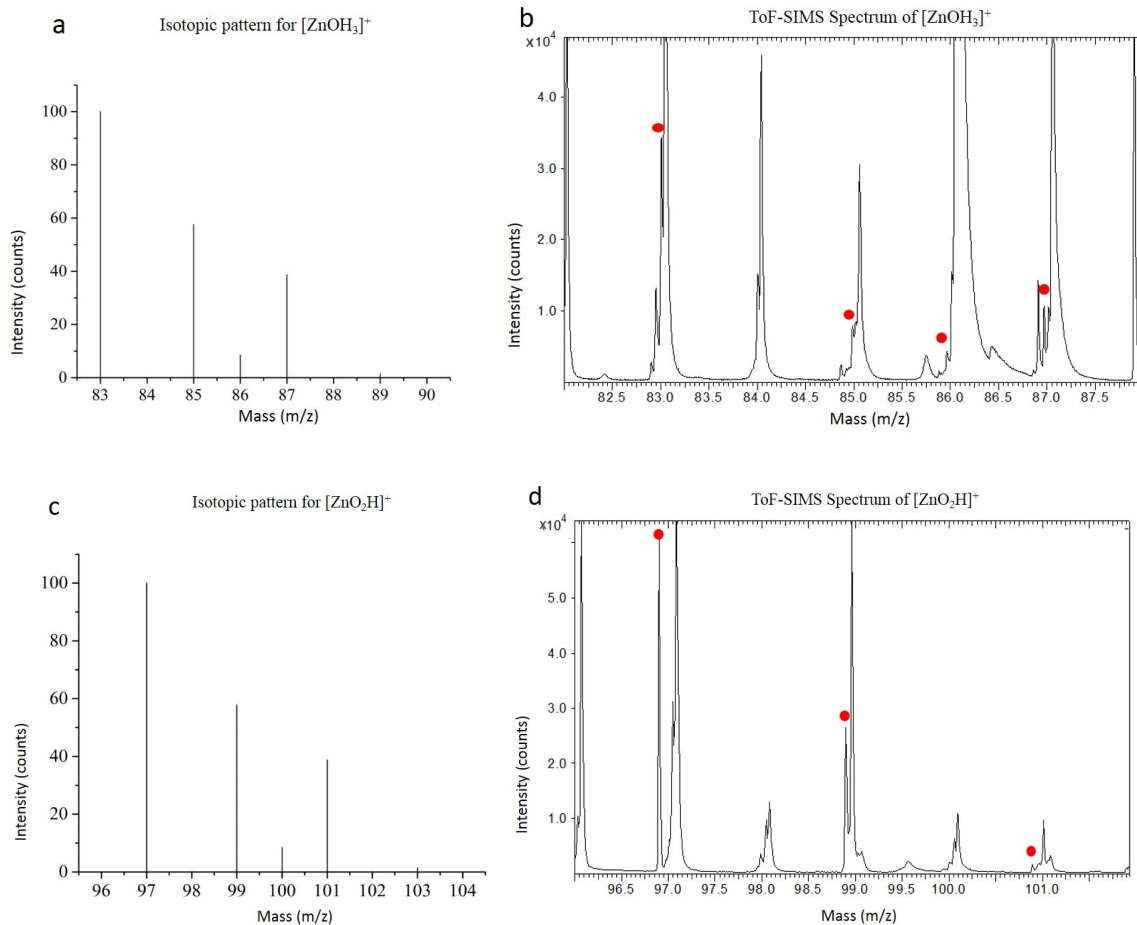


Fig. S1. (a) Isotopic pattern of $[\text{ZnOH}_3]^+$ (b) Representative mass spectrum including species of m/z 82.9 from ToF-SIMS analysis of freeze-dried rat hippocampus sections. (c) Isotopic pattern of $[\text{ZnO}_2\text{H}]^+$ (d) Similar mass spectrum containing m/z 96.9. Peaks marked with red circles in both spectra in (b) and (d) are those which match with the related isotopic patterns of $[\text{ZnOH}_3]^+$ and $[\text{ZnO}_2\text{H}]^+$.

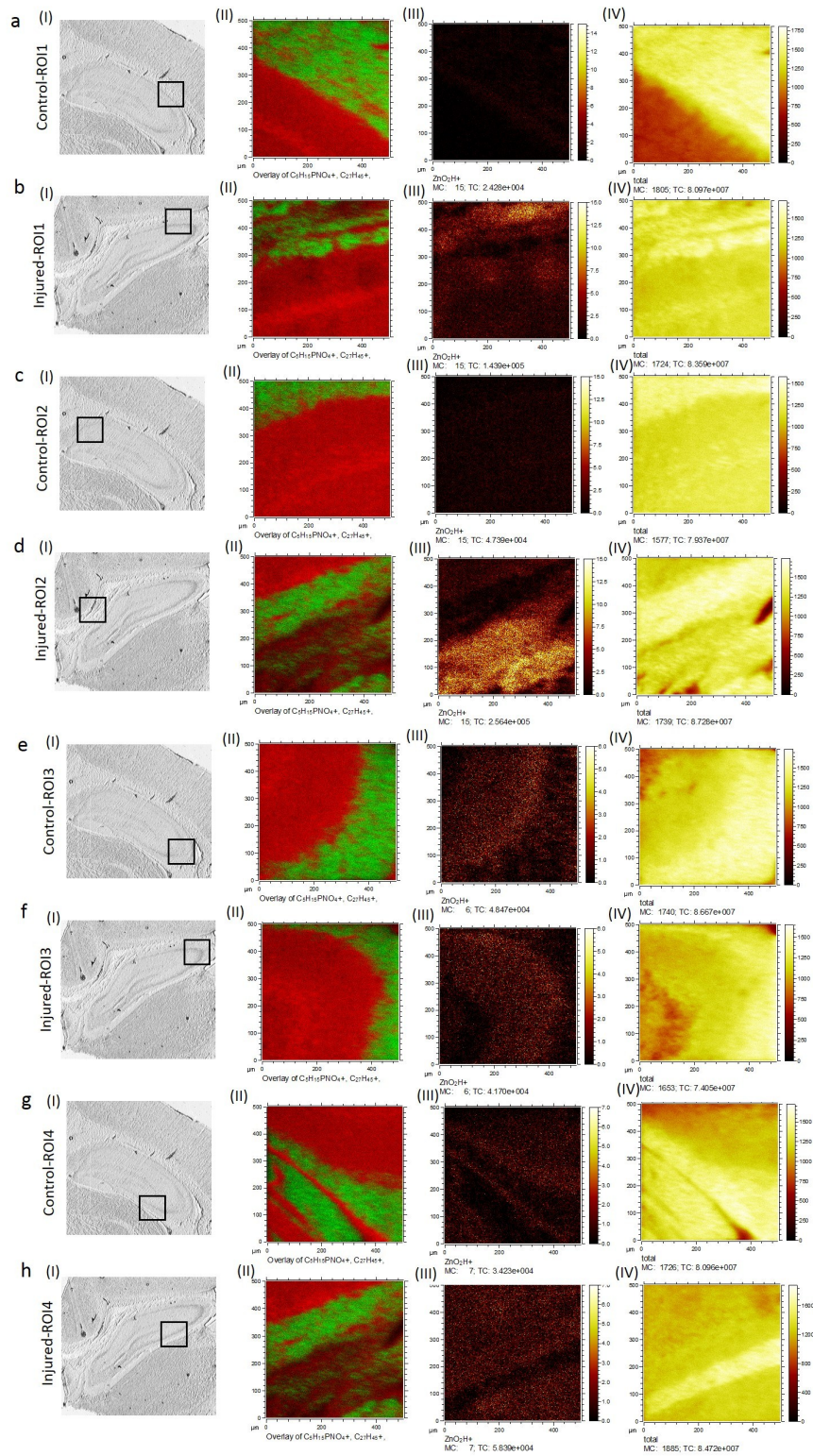


Fig.S2. (I) Optical microscopy images of freeze-dried rat hippocampus sections, (II) overlay of $C_5H_{15}PNO_4^+$ and $C_{27}H_{45}^+$ signals shown in red and green, respectively, (III) ion image of $[ZnO_2H]^+$ species and (IV) total ion image of (a) the first selected ROI in control (b) the first selected ROI in injured (c) the second selected ROI in control (d) the second selected ROI in injured (e) the third selected ROI in control (f) the third selected ROI in injured (g) the fourth selected ROI in control and (h) the fourth selected ROI in control. The image area of $500 \times 500 \mu m^2$ covering 256×256 pixels leads to a pixel resolution of $2 \mu m$.