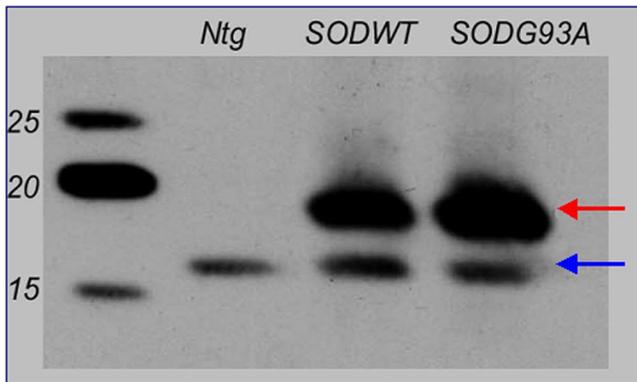
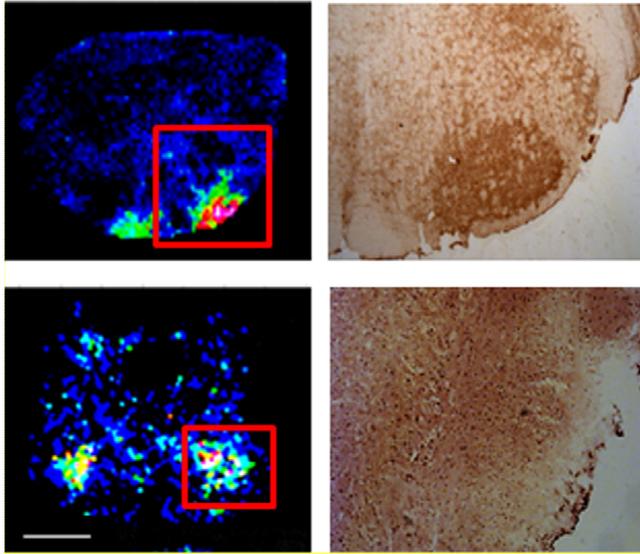


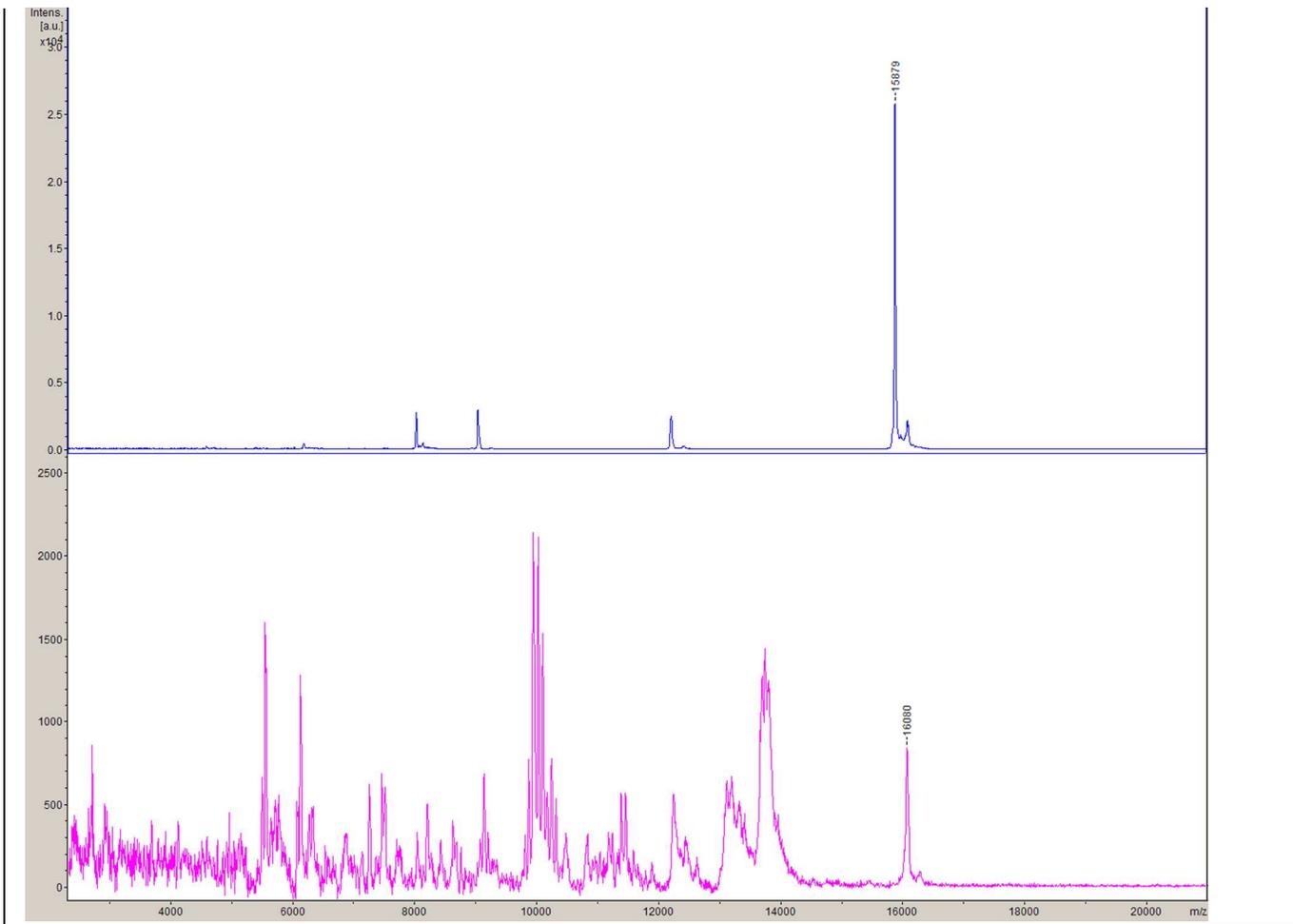
## SUPPLEMENTARY DATA



**Supplementary Figure 1.** Western blot analysis of proteins extracted from the brainstem region of 24-weeks old *Ntg*, hSOD1WT and hSOD1G93A mice. The chosen antibody recognized both human (red arrow) and murine (blue arrow) SOD1.



**Supplementary Figure 2.** Peak at 15,885 m/z distribution by MALDI-IMS (left) and SOD1 distribution by immunohistochemistry (right) in coronal brain sections from 24-weeks old hSOD1G93A mice in the facial (upper panels) and trigeminal (lower panels) nuclei region. Bar indicates 2 mm. Immunohistochemistry images refer to boxed regions in the corresponding MALDI-IMS images. The chosen antibody recognized both human and murine SOD1.



**Supplementary Figure 3.** MALDI-TOF MS analysis of proteins extracted from brain sections (in the facial nuclei region) of 24 weeks-old hSOD1G93A mice and subjected to C18-RP HPLC fractionation.

Upper panel: spectrum of fraction 12 (~~arrow indicates annotated~~ peak was identified as SOD1); lower panel: spectrum of fraction 13 (~~arrow indicates annotated~~ peak was identified as RPS19).

**Supplementary Table 1.** Details of protein identification (see attached Excel file).