**Supplementary Table: Statistical Details**

| Figure # | Details | Type of Test | n= | Df(F-value) | p |
|---|---|---|---|---|---|
| Figure 1B | NDS 3 hours | One-Way ANOVA | 6-7 | 3 (5.021) | <0.001 |
| Figure 1C | ROI Signal to Background | One-Way ANOVA | 16-37 | 3 (11.366) | <0.001 |
| Figure 2B | IBA1+ cell count | One-Way ANOVA | 18-24 | 3 (9.952) | 1.11e-05 |
| Figure 2C | % Area | One-Way ANOVA | 18-24 | 3 (16.11) | 2.33e-08 |
| Figure 2D | Average IBA1+ cell size | One-Way ANOVA | 18-24 | 3 (12.12) | 1.14e-06 |
| Figure 2E | Branch Length per IBA1+ cell | One-Way ANOVA | 18-24 | 3 (0.209) | 0.89 |
| Figure 2F | End points per IBA1+cell | One-Way ANOVA | 18-24 | 3 (5.156) | 0.002 |
| Figure 4A | IL Total Protein | One-Way ANOVA | 6 | 3 (3.208) | 0.045 |
| Figure 4B | IL Amide I | One-Way ANOVA | 6 | 3 (5.68) | 0.005 |
| Figure 4C | IL Amide II | One-Way ANOVA | 6 | 3 (8.997) | 0.0005 |
| Figure 4D | IL Total Lipid | One-Way ANOVA | 6 | 3 (14.78) | 2.64e-05 |

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| Figure 4E | IL $\nu_s(CH_2)$ | One-Way ANOVA | 6 | 3 (16.77) | 1.1e-05 |
| Figure 4F | IL$\nu_a(CH_2)$, | One-Way ANOVA | 6 | 3 (10.33) | 0.0002 |
| Figure 4G | IL $\nu_a(CH_3)$ | One-Way ANOVA | 6 | 3 (2.444) | 0.093 |
| Figure 4H | IL Lipid Ester (C=O) | One-Way ANOVA | 6 | 3 (11.22) | 0.0001 |
| Figure 4I | IL Olefin (CH) | One-Way ANOVA | 6 | 3 (21.04) | 2.13e-06 |
| Figure 5B | NDS 1 hour | 2-Way ANOVA GenxGr | 12-20 | 2 (5.729) | 0.005 |
| | | Tx | 12-20 | 1 (3.938) | 0.050 |
| | | Interactions | 12-20 | 2 (1.162) | 0.317 |
| Figure 5C | Average NDS Post-Stroke | 2-Way ANOVA GenxGr | 12-20 | 2 (2.378) | 0.099 |
| | | Tx | 12-20 | 1 (7.297) | 0.008 |
| | | Interactions | 12-20 | 2 (0.777) | 0.463 |
| Figure 5D | Discrimination Index Post-Stroke | 2-Way ANOVA GenxGr | 10-19 | 2 (0.173) | 0.842 |
| | | Tx | 10-19 | 1 (0.020) | 0.888 |
| | | Interactions | 10-19 | 2 (0.765) | 0.469 |
| Figure 5E | % Right Paw Usage Post-Stroke | 2-Way ANOVA GenxGr | 6-18 | 2 (0.150) | 0.861 |
| | | Tx | 6-18 | 1 (0.354) | 0.554 |
| | | Interactions | 6-18 | 2 (1.299) | 0.280 |
| Figure 6B | Infarct % | 2-Way ANOVA GenxGr | 13-20 | 2 (3.811) | 0.026 |
| | | Tx | 13-20 | 1 (0.266) | 0.607 |
| | | Interactions | 13-20 | 2 (0.526) | 0.593 |
| Supplemental Figure 1A | CL Total Protein | One-Way ANOVA | 6 | 3 (4.279) | 0.017 |
| Supplemental Figure 1B | CL Amide I | One-Way ANOVA | 6 | 3 (1.113) | 0.367 |
| Supplemental Figure 1C | CL Amide II | One-Way ANOVA | 6 | 3 (2.246) | 0.114 |
| Supplemental Figure 1D | CL Total Lipid | One-Way ANOVA | 6 | 3 (0.923) | 0.448 |
| Supplemental Figure 1E | CL $\nu_s(CH_2)$ | One-Way ANOVA | 6 | 3 (0.86) | 0.478 |

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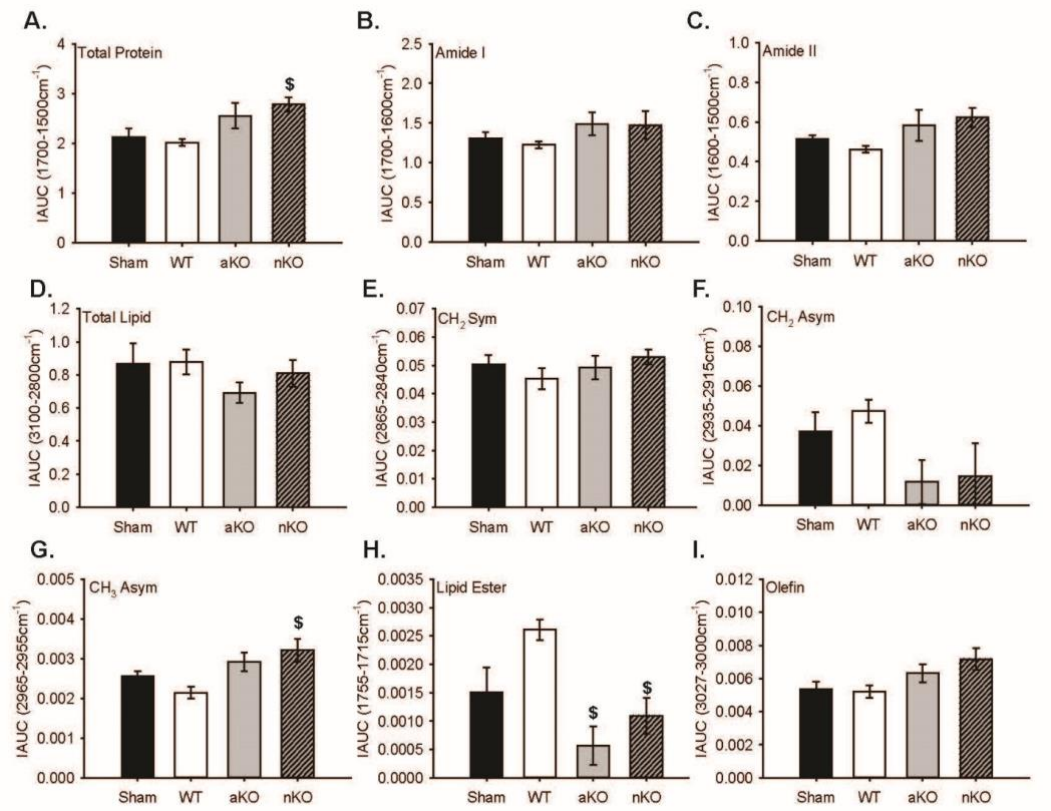
| Supplemental Figure 1F | CL$\nu_a(CH_2)$, | One-Way ANOVA | 6 | 3 (2.285) | 0.11 |
| Supplemental Figure 1G | CL $\nu_a(CH_3)$ | One-Way ANOVA | 6 | 3 (4.801) | 0.011 |
| Supplemental Figure 1H | CL Lipid Ester (C=O) | One-Way ANOVA | 6 | 3 (6.761) | 0.002 |
| Supplemental Figure 1I | CL Olefin (CH) | One-Way ANOVA | 6 | 3 (3.169) | 0.046 |

**Supplemental Figure 1:**




**Supplemental Figure: Healthy Hemisphere Biochemical Changes** (A-I) Quantitative integrated spectral ranges (IAUC) of total protein, Amide I, Amide II, total lipid, νs(CH2), νa(CH2 ), νa(CH3), lipid ester (C=O), and olefin (CH). Two slices per 3 mice were included in the data analysis and statistical comparisons (n=6). All data are expressed as mean +/- SEM and were compared using a one-way ANOVA with Tukey post-hoc. * indicate significant difference ($p<0.05$) compared to sham group, and $ indicate significant difference ($p<0.05$) compared to WT group. Abbreviations: nKO neuronal IGF-1R knockout, aKO astrocyte IGF-1R knockout, WT wildtype