

## Supplementary data:

# Effects of Fish Oil and Grape Seed Extract Combination on Hepatic Endogenous Antioxidants and Bioactive Lipids in Diet-Induced Early Stages of Insulin Resistance in Rats

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**Table S2. Diacylglycerol and ceramide species identified in the rat liver**

|       | Lipid specie              | m/z*     | RT (min)      | [M-R <sub>1</sub> COOH+H] <sup>+</sup> | [M-R <sub>2</sub> COOH+H] <sup>+</sup> | [R <sub>1</sub> COO+C <sub>3</sub> H <sub>5</sub> O+H] <sup>+</sup> | [R <sub>2</sub> COO+C <sub>3</sub> H <sub>5</sub> O+H] <sup>+</sup> | [R <sub>1</sub> CO] <sup>+</sup> | [R <sub>2</sub> CO] <sup>+</sup> |
|-------|---------------------------|----------|---------------|--|--|---|---|----------------------------------|----------------------------------|
| SFA   | 16:0.16:0-DAG             | 586.5409 | 13.18         | 313.2737                               | 313.2737                               | 313.2737  | 313.2737  | 239.2375                         | 239.2375                         |
|       | 16:0.16:0-DAG (II)        | 586.5410 | 13.29         | 313.2737                               | 313.2737                               | 313.2737  | 313.2737  | 239.2375                         | 239.2375                         |
|       | 16:0.18:0-DAG             | 614.5725 | 13.48         | 341.3050                               | 313.2737                               | 313.2737  | 341.3050  | 239.2375                         | 267.2688                         |
|       | 16:0.18:0-DAG(II)         | 614.5723 | 13.60         | 341.3050                               | 313.2737                               | 313.2737  | 341.3050  | 239.2375                         | 267.2688                         |
|       | 18:0.18:0-DAG             | 642.6039 | 13.81         | 341.3057                               | 341.3057                               | 341.3050  | 341.3050  | 267.2688                         | 267.2688                         |
| MUFA  | 16:0.16:1-DAG             | 584.5247 | 12.99         | 311.2580                               | 313.2737                               | 313.2737  | 311.2581  | 239.2375                         | 237.2218                         |
|       | 16:0.18:1-DAG             | 612.5560 | 13.19         | 339.2893                               | 313.2737                               | 313.2737  | 339.2894  | 239.2375                         | 265.2531                         |
|       | 16:0.18:1-DAG(II)         | 612.5567 | 13.28         | 339.2893                               | 313.2737                               | 313.2737  | 339.2894  | 239.2375                         | 265.2531                         |
|       | 18:1.18:1-DAG             | 638.5720 | 13.27         | 339.2894                               | 339.2894                               | 339.2894  | 339.2894  | 265.2531                         | 265.2531                         |
| PUFA  | 22:5.22:6-DAG             | 732.5551 | 12.30         | 385.2739                               | 387.2895                               | 387.2894  | 385.2737  | 313.2531                         | 311.2375                         |
|       | 18:2.22:6-DAG             | 682.5406 | 12.45         | 385.2743                               | 337.2743                               | 337.2737  | 385.2737  | 263.2375                         | 311.2375                         |
|       | 18:2.22:5-DAG             | 684.5557 | 12.55         | 387.2888                               | 337.2732                               | 337.2737  | 387.2894  | 263.2375                         | 313.2531                         |
|       | 16:0.20:5+18:2.18:3-DAG   | 632.5247 | 12.50         | 359.2580 / 335.2580                    | 313.2737 / 337.2737                    | 313.2737 / 337.2737   | 359.2581 / 335.2581   | 239.2375 / 263.2375              | 285.2218 / 261.2218              |
|       | 18:1.20:5+16:0.22:6-DAG   | 658.5403 | 12.63         | 359.2580 / 385.2736                    | 339.2893 / 313.2736                    | 339.2894 / 313.2737   | 359.2581 / 385.2737   | 265.2531 / 239.2375              | 285.2218 / 311.2375              |
|       | 18:1.22:6-DAG             | 684.5557 | 12.68         | 385.2732                               | 339.2888                               | 339.2894  | 385.2737  | 265.2531                         | 311.2375                         |
|       | 16:0.22:5-DAG             | 660.5564 | 12.79         | 387.2893                               | 313.2737                               | 313.2737  | 387.2894  | 239.2375                         | 313.2531                         |
|       | 18:1.22:5-DAG             | 686.5722 | 12.80         | 387.2895                               | 339.2895                               | 339.2894  | 387.2894  | 265.2531                         | 313.2531                         |
|       | 16:0.18:2 + 16:0.18:2-DAG | 610.5411 | 12.89 / 12.98 | 337.2737                               | 313.2737                               | 313.2737  | 337.2737  | 239.2375                         | 263.2375                         |
|       | 18:1.18:2-DAG             | 636.5565 | 12.98         | 337.2741                               | 339.2897                               | 339.2894  | 337.2737  | 265.2531                         | 263.2375                         |
| LCFA  | Cer(d18:1/16:0)           | 538.5194 | 12.96         |  |  |   |   |                                  |                                  |
|       | Cer(d18:1/18:1(9Z))       | 564.535  | 13.00         |  |  |   |   |                                  |                                  |
|       | Cer(d18:1/18:0)           | 566.5507 | 13.28         |  |  |   |   |                                  |                                  |
|       | Cer(d18:1/20:0)           | 594.582  | 13.63         |  |  |   |   |                                  |                                  |
| VLCFA | Cer(d18:1/24:1(15Z))      | 648.6289 | 13.94         |  |  |   |   |                                  |                                  |
|       | Cer(d18:1/22:0)           | 622.6133 | 14.00         |  |  |   |   |                                  |                                  |
|       | Cer(d18:1/23:0)           | 636.6289 | 14.21         |  |  |   |   |                                  |                                  |
|       | Cer(d18:1/24:0)           | 650.6446 | 14.42         |  |  |   |   |                                  |                                  |
|       | Cer(d18:1/25:0)           | 664.6602 | 14.60         |  |  |   |   |                                  |                                  |

Abbreviations: RT, Retention time; DAG, Diacylglycerol; SFA, Saturated Fatty Acid; MUFA, Monounsaturated Fatty Acid; PUFA, Polyunsaturated Fatty Acid; LCFA, Long-Chain Fatty Acid; Cer, Ceramide; VLCFA, Very Long-Chain Fatty Acid. \*DAG and ceramide species are  $[M+NH_4]^+$  and  $[M+H]^+$ , respectively.