Supplementary Material for

Temporal Changes in the Brain Lipidome During Neurodevelopment of Smith-Lemli-Opitz Syndrome Mice

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Table S4 (excel) – Significantly altered lipids (FDR < 0.05) from ANOVA analysis for each time point, with logCPM (average log abundance), logFC (log fold change), adjusted *p* value, and average log abundances for WT and KO groups.

Table S5 (excel) – Results of enriched KEGG pathways from LIPEA pathway analysis of significantly altered lipids.

Figure S1 – Average tissue weights of mouse brains

Figure S2 – IM-MS CCS conformational plots

Figure S3 – Principal component analysis (PCA) plots

Figure S4 – Bar plots of two significantly altered oxysterol compounds

Supplementary Figure 1.

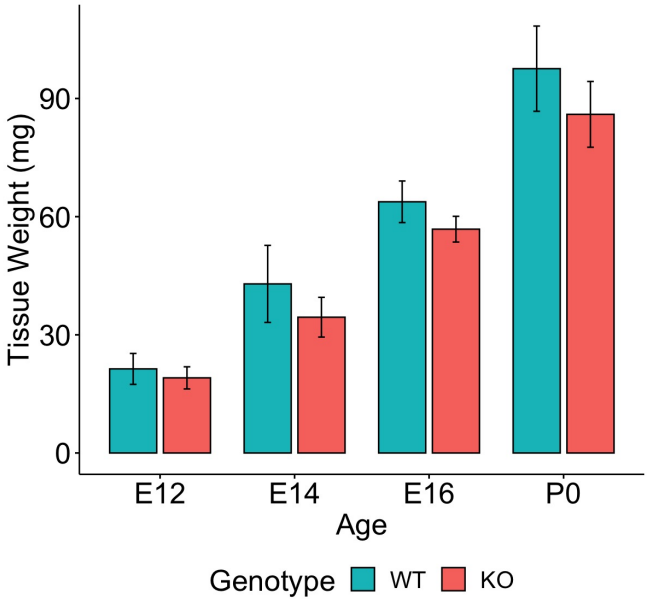

Figure S1. Frozen weights of brain tissue samples after dissection; four biological replicates per age group and genotype.

Supplementary Figure 2.

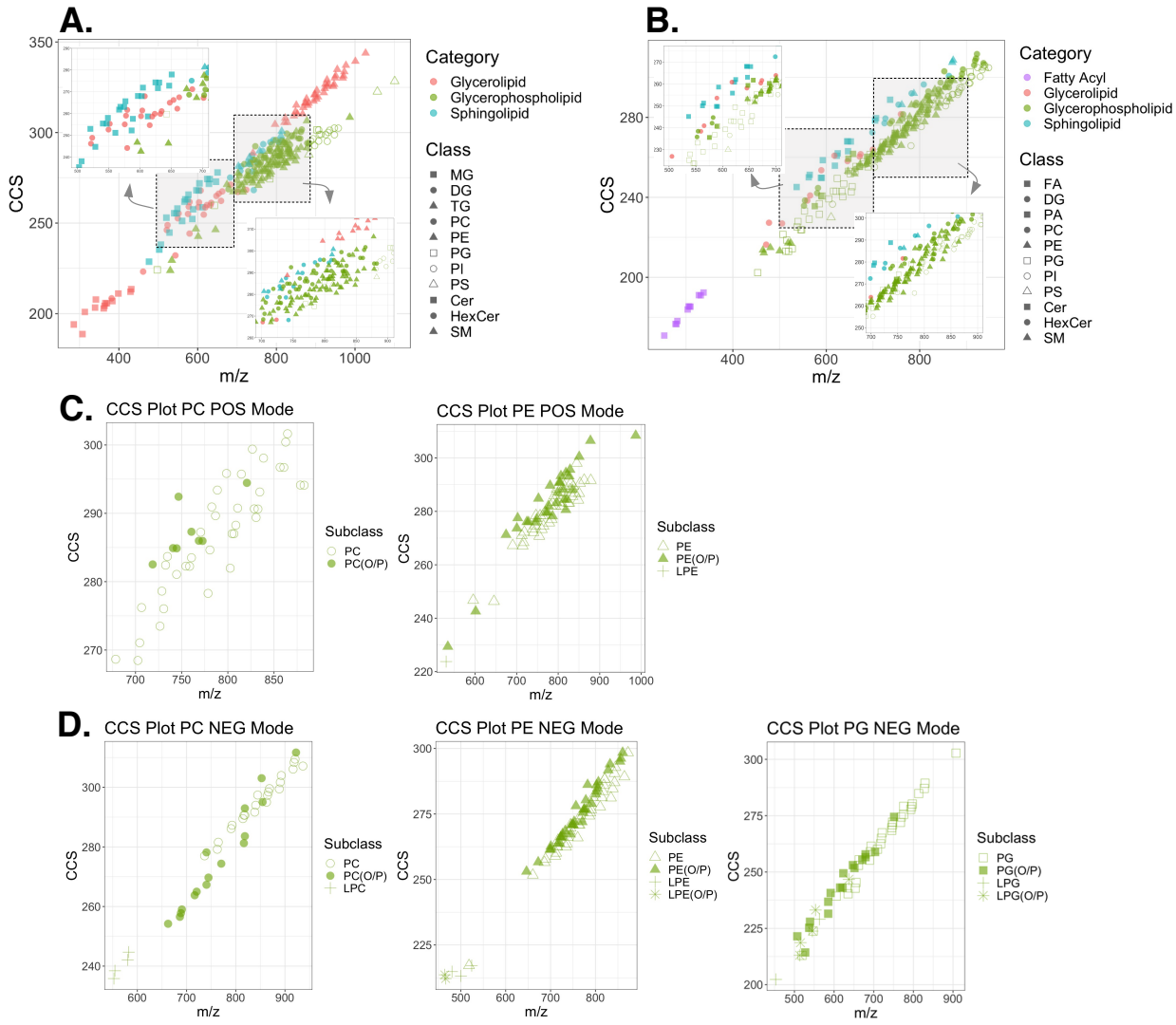

Figure S2. IM-MS conformational plot for CCS measurements of lipid species detected in **A.** positive and **B.** negative ionization modes. Colors differentiate the lipid categories, while point shapes differentiate the lipid classes. Individual CCS plots for PC, PE, and PG lipids to distinguish acyl-, plasmenyl/plasmenyl-, and lyso- subclasses in **C.** positive and **D.** negative ionization modes.

Supplementary Figure 3.

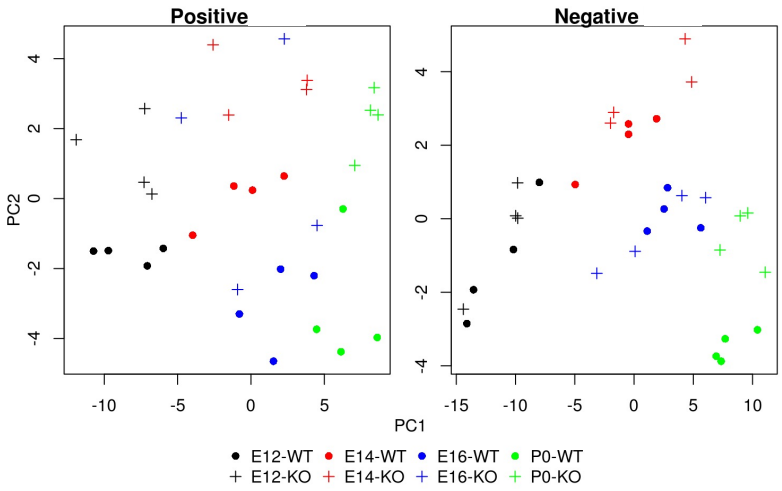

Figure S3. Principal component analysis (PCA) of WT and *Dhcr7*-KO samples grouped by age and genotype for both positive and negative ionization modes.

Supplementary Figure 4.

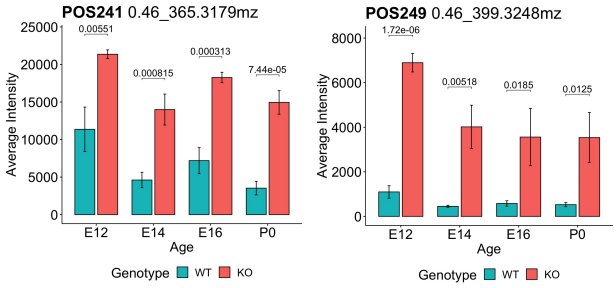

Figure S4. Bar plots comparing relative amounts of two oxysterol species (denoted by its compound number, retention time and *m/z* value) in WT and *Dhcr7*-KO samples.