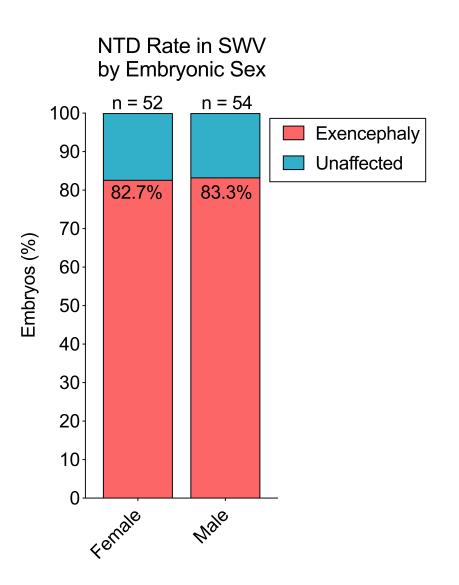
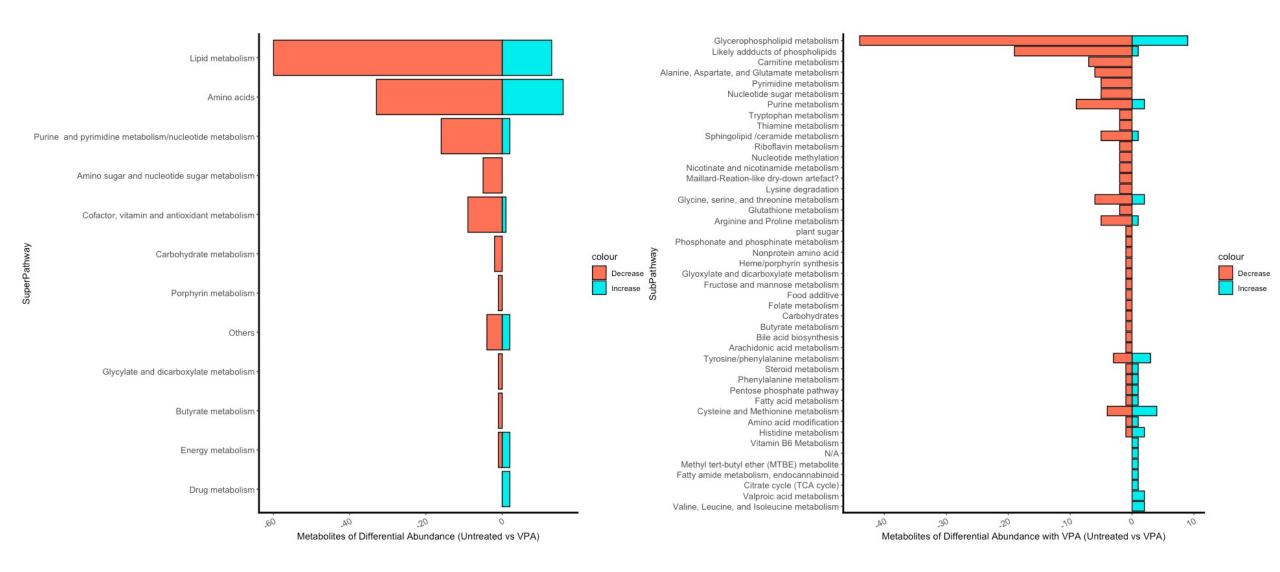
Supplementary Figure 1. Occurrence of NTDs by embryonic sex in VPA-treated SWV.



## Supplementary Figure 2. Number of increased and decreased MDAs in each super and sub pathway classification.



## Supplementary Figure 3. Abundance of metabolites involved in the methylation cycle and the SAM/SAH ratio.

Homocysteine

0.0483

C57

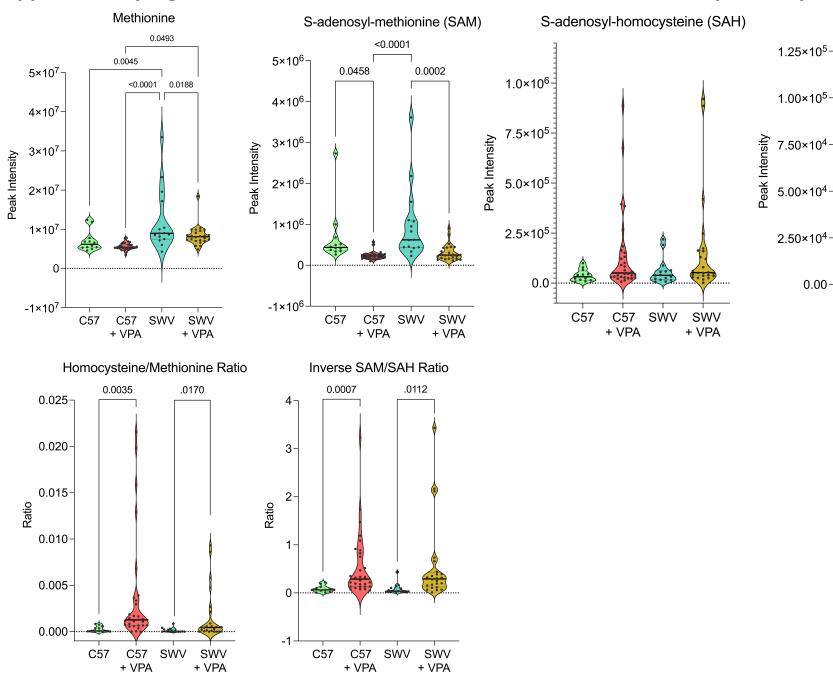
C57

+ VPA

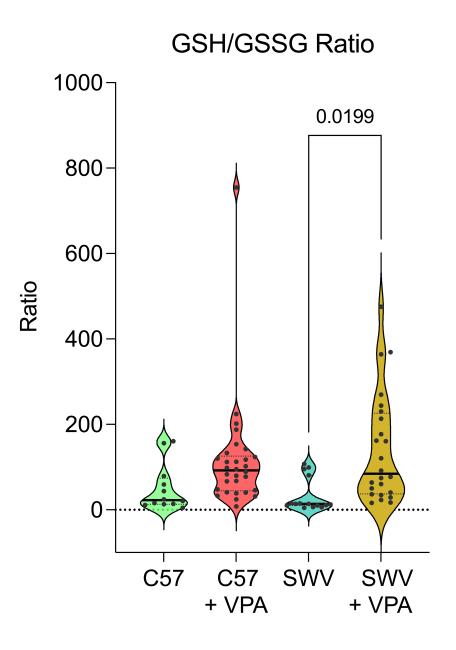
SWV

SWV

+ VPA



Supplementary Figure 4. Ratio of oxidized glutathione to reduced glutathione.



## **Supplementary Figure 5. Carnitine abundance in embryos.**

