

Expanded View Figures

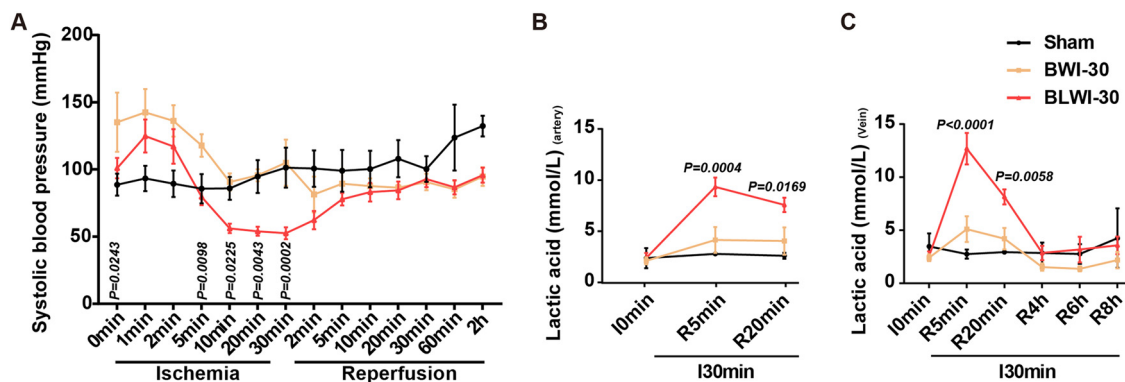


Figure EV1. Systolic blood pressure and lactic acid levels in the global cerebral ischemia model.

(A) Systolic blood pressure of the pigs in the BWI-30 and BLWI-30 groups. (B, C) Lactic acid levels of the right mammary artery (B) and right external jugular vein (C) of the pigs in the BWI-30 and BLWI-30 groups. (A–C) Sham, no ischemia, $n = 3$; BWI-30, brain with 30-min warm ischemia, $n = 6$; BLWI-30, brain and liver with 30-min warm ischemia, $n = 7$. All replicates shown were biological replicates. I, ischemia; R, reperfusion. Mean \pm SEM, 2-way ANOVA analysis; BLWI-30 versus BWI-30.

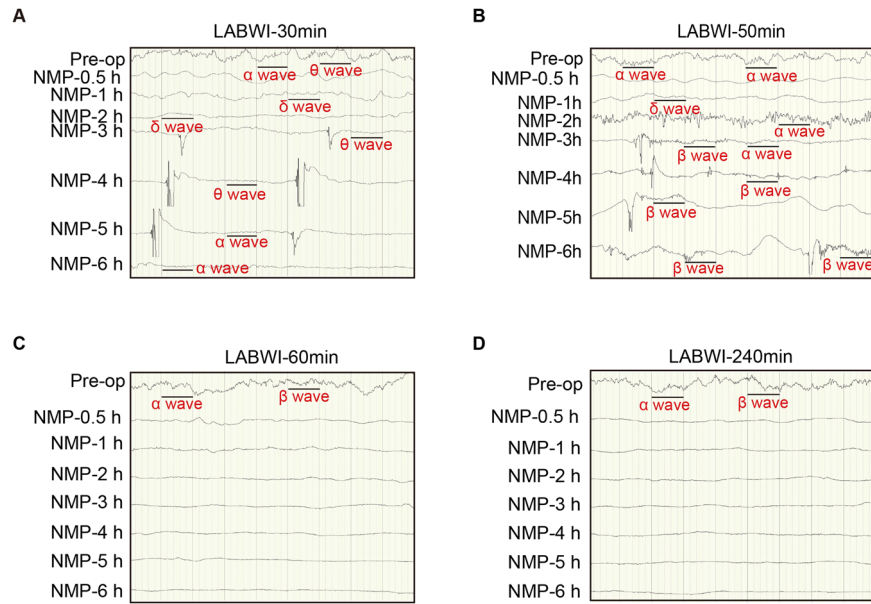


Figure EV2. Electrophysiological activity during ex vivo liver-assisted brain NMP.

(A–D) Electroencephalography results of a representative pig brain in the liver-assisted brain groups, where normothermic machine perfusion (NMP) followed intervals of 30-, 50-, 60-, or 240 min. LABWI, liver-assisted brain groups in which brain NMP was preceded by 30–240 min of warm ischemia time; Pre-op, Pre-operation.

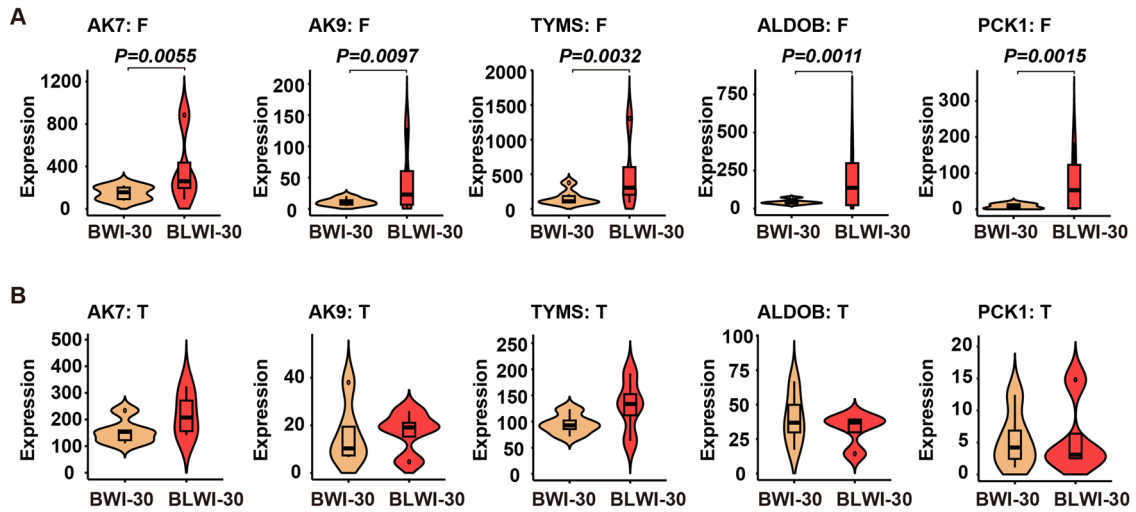
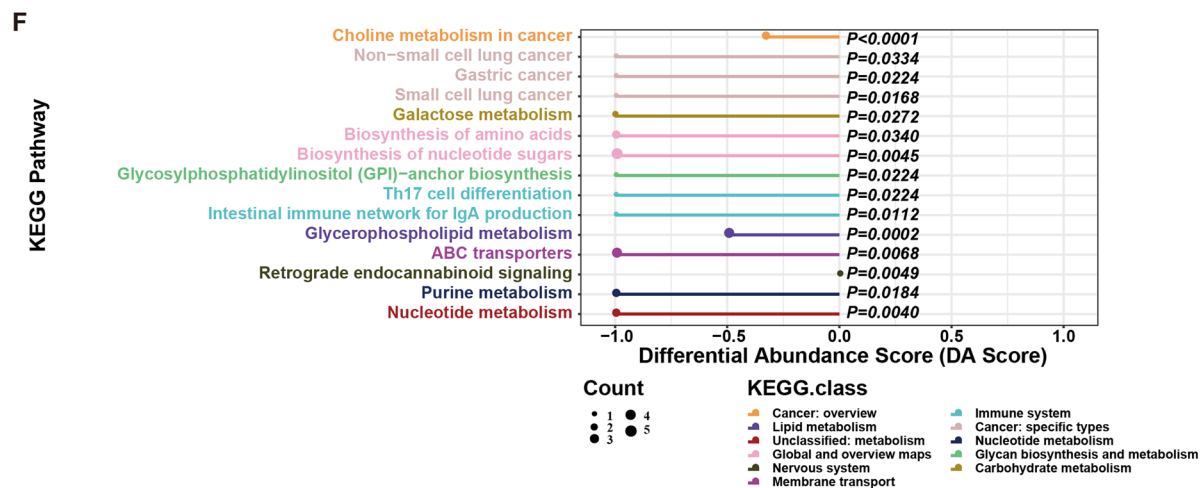
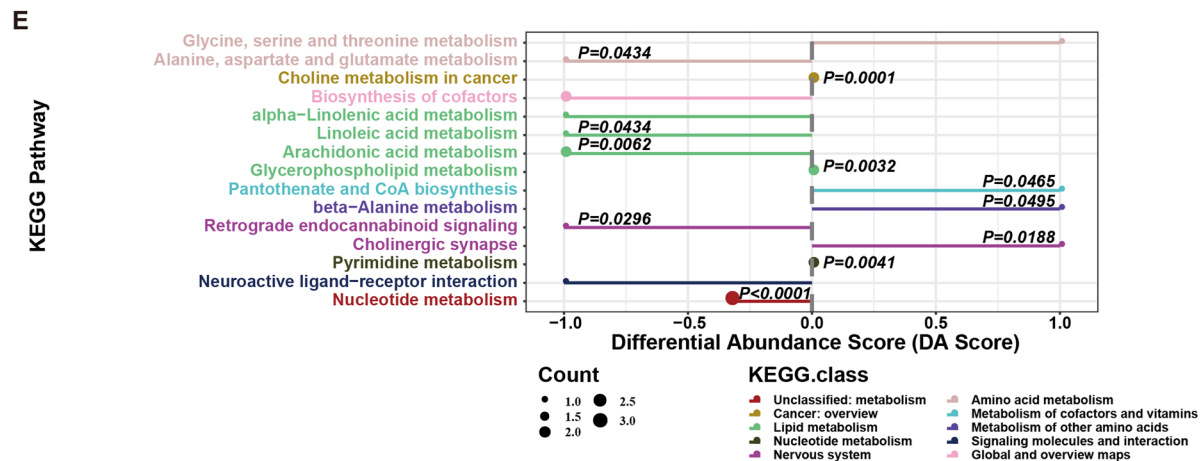
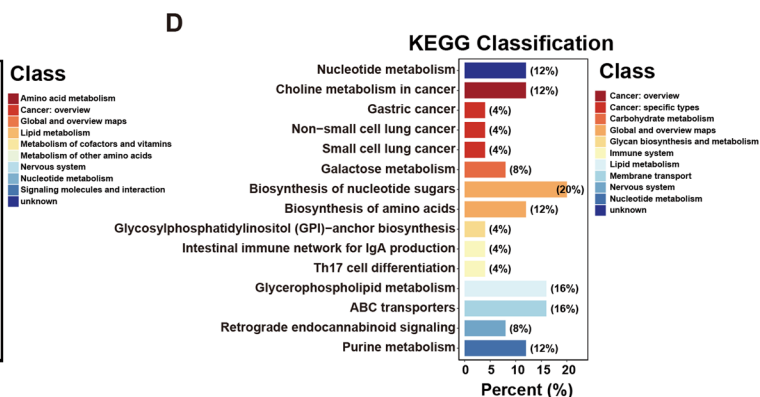
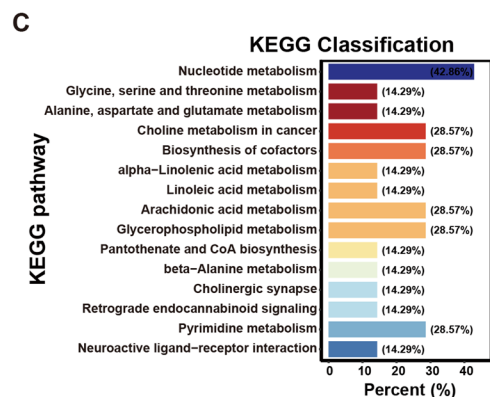
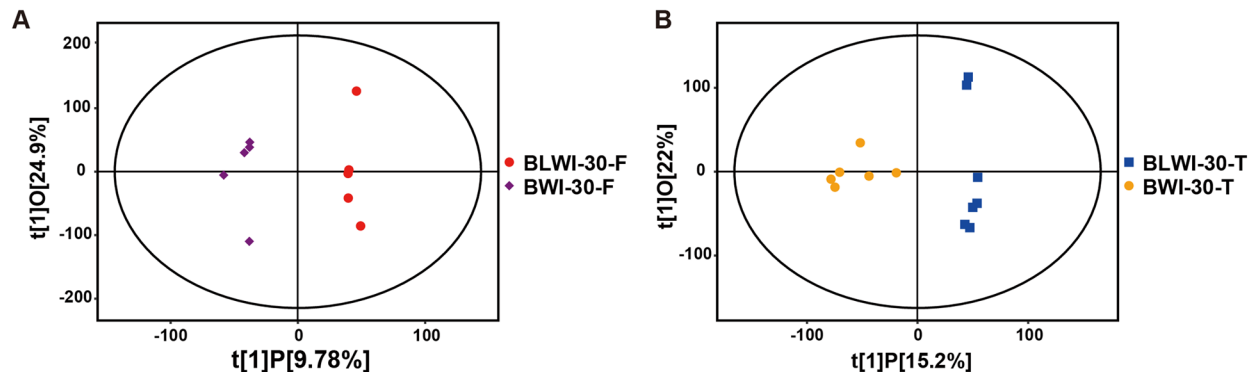


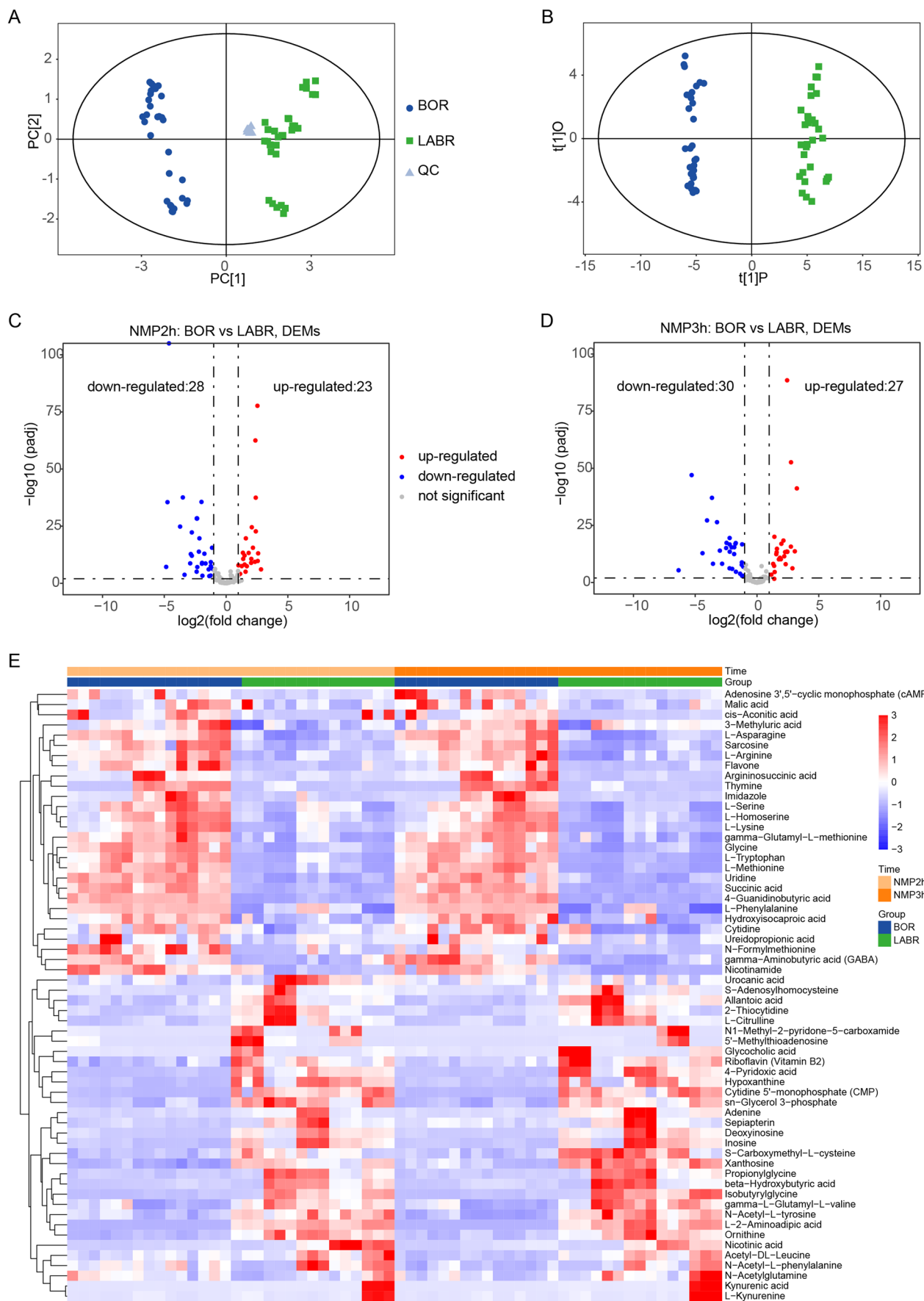
Figure EV3. Differentially expressed genes involved in metabolic processes in the global cerebral ischemia model.

(A, B) Violin plot illustrating the expression (reads per kilobase per million, RPKM) of differential genes in each of the biological replicates in the frontal lobe (BWI-30, $n=6$; BLWI-30, $n=4$) (A) or temporal lobe (BWI-30, $n=5$; BLWI-30, $n=4$) (B) of pigs. All replicates shown were biological replicates. (A, B) The vertical lines (whiskers) connecting the box represented the maximum and minimum values. The box signified the upper (75th percentiles) and lower quartiles (25th percentiles). The central band inside the box represents the median (50th percentiles). Outliers were shown. P values were calculated by the Wald test using the DESeq2 R package.



◀ Figure EV4. Metabolome differences in pig brain tissues with and without simultaneous hepatic ischemia.

(A) Scatter plot depicting orthogonal projections to latent structures-discriminant analysis (OPLS-DA) results for the frontal lobe comparing the BLWI-30 and BWI-30 groups. (B) Scatter plot depicting the OPLS-DA data for the temporal lobe comparing the BLWI-30 and BWI-30 groups. (C, D) The bar plot displays the KEGG annotation of detected metabolites for the frontal lobe (C) and temporal lobe (D). The x-axis represents the percentage of identified metabolites in each KEGG class. (E, F) Depiction of overall changes in differential metabolites within a specific pathway for the frontal lobe (E) and temporal lobe (F). The Differential Abundance Score (DA Score) was calculated as the ratio of the difference between the upregulated metabolite count and the downregulated metabolite count on a specific pathway to the total count of metabolites on that pathway. (A-F) Frontal lobe: BWI-30, $n = 5$, BLWI-30, $n = 5$; temporal lobe: BWI-30, $n = 6$, BLWI-30, $n = 7$. All replicates shown were biological replicates. P values were calculated by Fisher's exact test (E, F) using the ggplot2 R package.



◀ **Figure EV5. Metabolome differences in the perfusate serum during ex vivo pig brain NMP with and without a functioning liver support.**

(A) Principal component analysis (PCA) showcasing the global variation within and between groups for the overall samples. (B) Scatter plot of orthogonal projections to latent structures-discriminant analysis (OPLS-DA) illustrating the differences between groups. (C, D) Volcano plot demonstrating the differential metabolites after 2 and 3 h of normothermic machine perfusion (NMP). (E) Heatmap displaying the z-score distribution of significantly different metabolites across various time points, with each row representing a metabolite. The heatmap was generated with the DESeq2 R package. (A–E) $n = 5$ pigs in each group, triplicate perfusate samples for technical replicates in each pig. (C, D) P values were calculated by the Wald test using the DESeq2 R package.