

# Supplementary Materials: Transcriptomic Alterations in Water Flea (*Daphnia magna*) Following Pravastatin Treatments: Insect Hormone Biosynthesis and Energy Metabolism

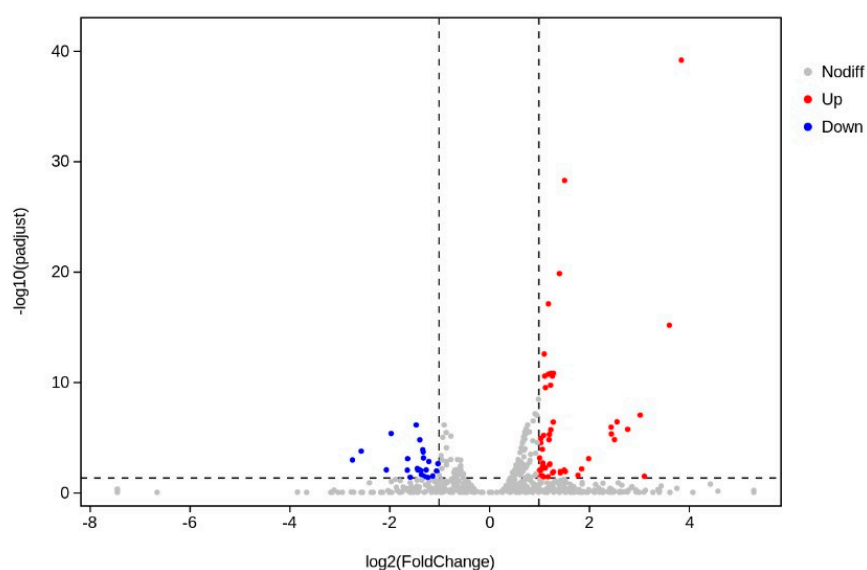
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**Table S1.** List of basic pathways affected by pravastatin sodium exposure ( $p < 0.05$ ).

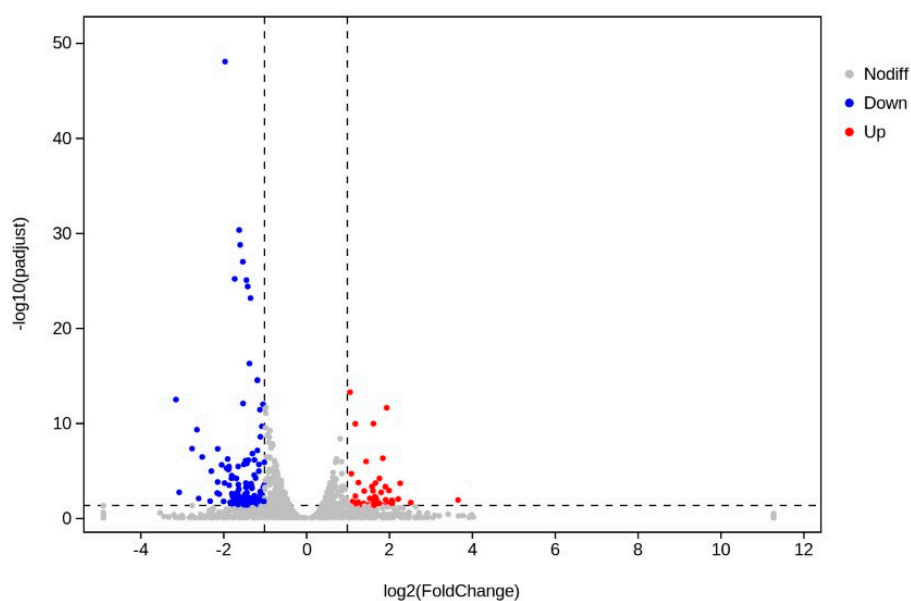
Category	Pathway	P value	Up-gene	Down-gene
C-vs-L				
Human Diseases	Amphetamine addiction	$7.0 \times 10^{-3}$	<i>ddc</i>	-
Human Diseases	Chemical carcinogenesis	$3.9 \times 10^{-5}$	<i>cox2, gst, ugt</i>	-
Human Diseases	Cocaine addiction	$3.8 \times 10^{-3}$	<i>ddc</i>	-
Metabolism	Arachidonic acid metabolism	$6.3 \times 10^{-3}$	<i>gst</i>	-
Metabolism	Arginine biosynthesis	$4.3 \times 10^{-2}$	<i>nos1</i>	-
Metabolism	Ascorbate and aldarate metabolism	$4.4 \times 10^{-3}$	<i>ugt</i>	-
Metabolism	Cysteine and methionine metabolism	$7.0 \times 10^{-3}$	<i>gclc, gss</i>	-
Metabolism	Pentose and glucuronate interconversions	$2.6 \times 10^{-4}$	<i>akr1b, ugt</i>	-
Metabolism	Phenylalanine metabolism	$1.4 \times 10^{-3}$	<i>ddc</i>	-
Metabolism	Porphyrin and chlorophyll metabolism	$7.7 \times 10^{-3}$	<i>ugt</i>	-
Metabolism	Retinol metabolism	$1.3 \times 10^{-2}$	<i>ugt</i>	-
Metabolism	Starch and sucrose metabolism	$1.3 \times 10^{-2}$	<i>amy</i>	-
Metabolism	Steroid hormone biosynthesis	$8.1 \times 10^{-3}$	<i>ugt</i>	-
Metabolism	Tryptophan metabolism	$5.3 \times 10^{-3}$	<i>ddc</i>	-
Metabolism	Tyrosine metabolism	$1.5 \times 10^{-3}$	<i>ddc</i>	-
Organismal Systems	Carbohydrate digestion and absorption	$8.9 \times 10^{-3}$	<i>amy</i>	-
Organismal Systems	Dopaminergic synapse	$1.3 \times 10^{-2}$	<i>ddc</i>	-
Organismal Systems	Serotonergic synapse	$3.3 \times 10^{-4}$	<i>cox2, ddc</i>	-
C-vs-M				
Cellular Processes	Lysosome	$2.9 \times 10^{-2}$	<i>npc2</i>	<i>cd63, ctsl</i>
Environmental Information Processing	FoxO signaling pathway	$4.1 \times 10^{-2}$	-	<i>fbxo25_32, g6pc</i>
Human Diseases	Proteoglycans in cancer	$1.9 \times 10^{-2}$	<i>twist</i>	<i>cd63, ctsl</i>
C-vs-H				
Cellular Processes	Ferroptosis	$2.5 \times 10^{-2}$	<i>fth1, gclc</i>	-
Environmental Information Processing	ECM-receptor interaction	$3.9 \times 10^{-2}$	-	<i>col1a, col4a</i>
Environmental Information Processing	Neuroactive ligand-receptor interaction	$6.8 \times 10^{-3}$	-	<i>gria1, prss1_2_3</i>
Human Diseases	Chemical carcinogenesis	$2.5 \times 10^{-3}$	<i>cyp1a1, gst, ugt,</i>	-
Human Diseases	Influenza A	$3.0 \times 10^{-2}$	<i>prss1_2_3</i>	-
Human Diseases	Staphylococcus aureus infection	$1.0 \times 10^{-2}$	<i>cfi</i>	<i>cyp3a</i>
Metabolism	Amino sugar and nucleotide sugar metabolism	$6.7 \times 10^{-3}$	<i>e3.2.1.14</i>	<i>anpep</i>
Metabolism	Glycosaminoglycan biosynthesis - chondroitin sulfate / dermatan sulfate	$2.5 \times 10^{-2}$	<i>csgalnact1_2, ust</i>	-
Metabolism	Linoleic acid metabolism	$1.0 \times 10^{-2}$	<i>cyp3a</i>	<i>grik2, prss1_2_3</i>

Metabolism	Monobactam biosynthesis	$4.6 \times 10^{-5}$	-	<i>cela2, col1a, col4a, prss1_2_3,</i>
Metabolism	Retinol metabolism	$1.2 \times 10^{-3}$	<i>cyp3a4, ugt</i>	<i>dhhs3, dhhs4, rdh5, rdh8</i>
Metabolism	Selenocompound metabolism	$4.4 \times 10^{-3}$	-	<i>cela2, clca2, prss1_2_3</i>
Metabolism	Starch and sucrose metabolism	$3.2 \times 10^{-2}$	<i>amy, e3.2.1.4, tps</i>	<i>prss1_2_3</i>
Metabolism	Steroid hormone biosynthesis	$1.4 \times 10^{-2}$	<i>cyp3a, ugt</i>	-
Metabolism	Sulfur metabolism	$1.7 \times 10^{-3}$	-	<i>cyp3a4, dhhs3, dhhs4, rdh5, rdh8</i>
Organismal Systems	Antigen processing and presentation	$3.6 \times 10^{-2}$	<i>ctss,</i>	<i>ctsb</i>
Organismal Systems	Complement and coagulation cascades	$1.7 \times 10^{-3}$	<i>cfh</i>	<i>papss</i>

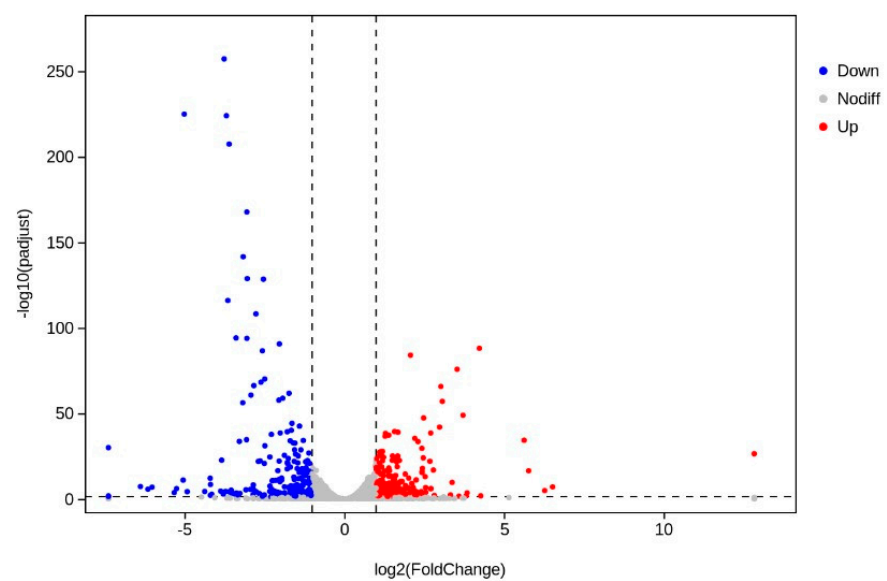
C-vs-L



C-vs-M

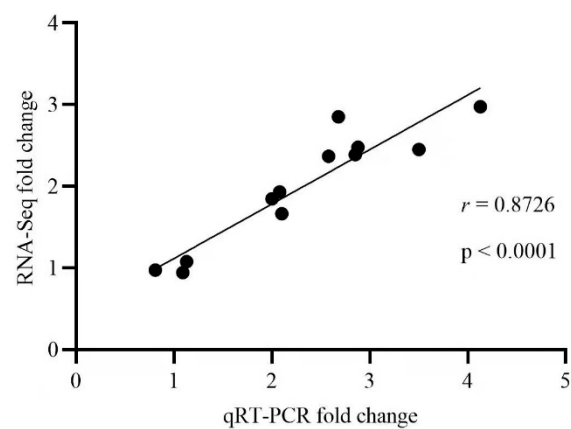


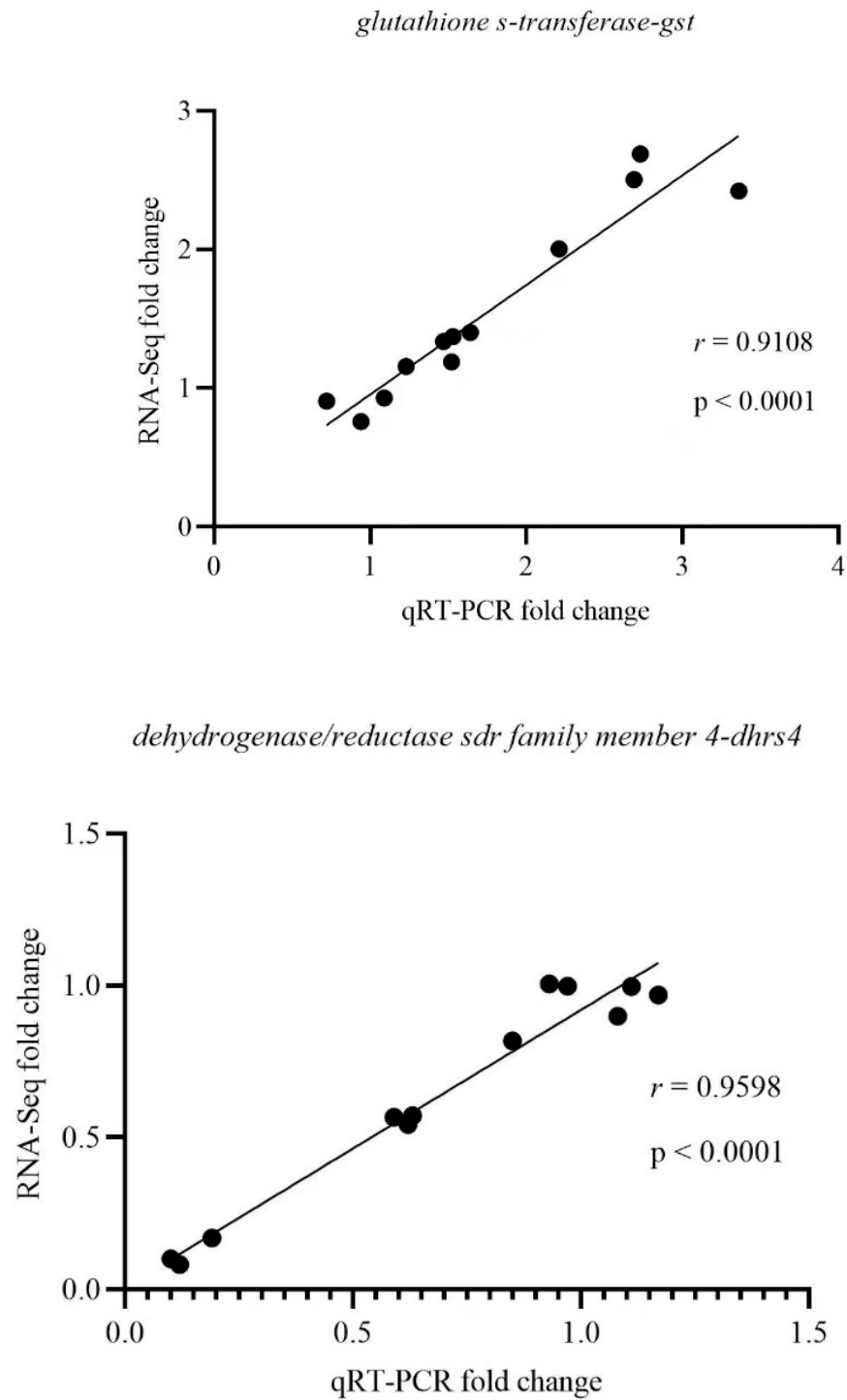
C-vs-H



**Figure S1.** Volcano plots of all differentially expressed genes (DEGs) in the pravastatin sodium-treated groups. The X-axis depicts the log2 fold change of DEGs and the Y-axis depicts the  $-\log_{10}$  (adjust p value).

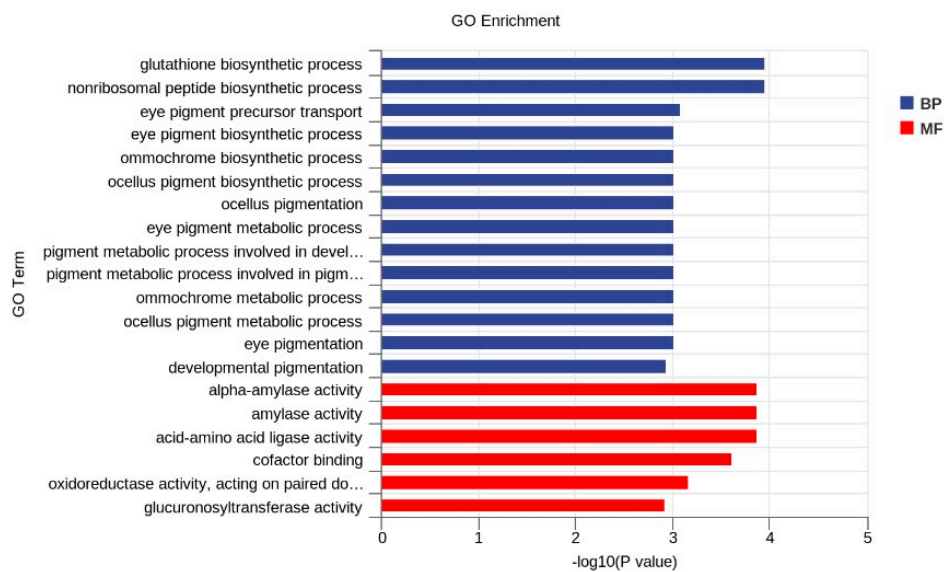
*methyl farnesoate epoxidase / farnesoate epoxidase-cyp15a1\_c1*



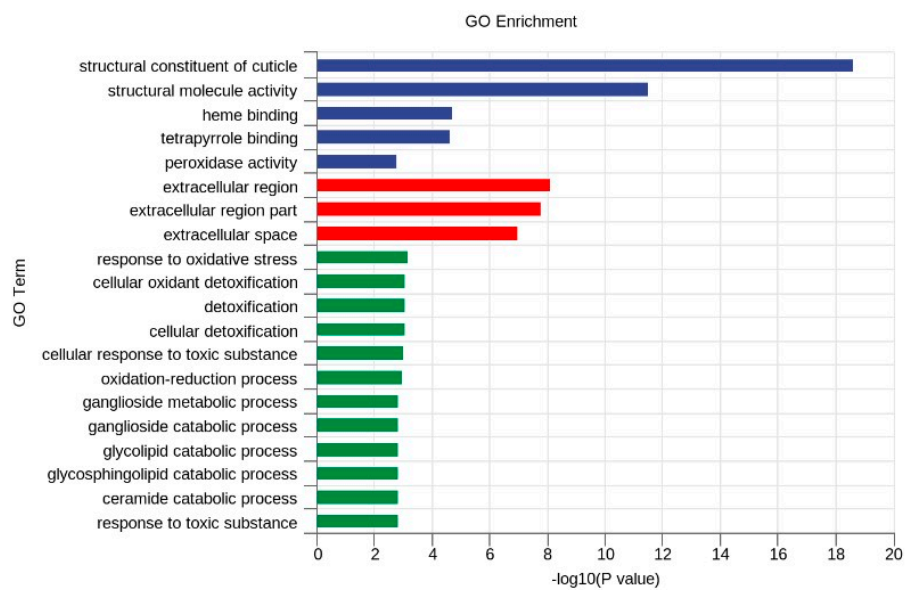


**Figure S2.** The correlation between fold changes (pravastatin sodium-treated groups relative to control) in mRNA levels determined by qRT-PCR and RNA-seq of genes *cyp15a1\_c1*, *gst* and *dhrs4*.

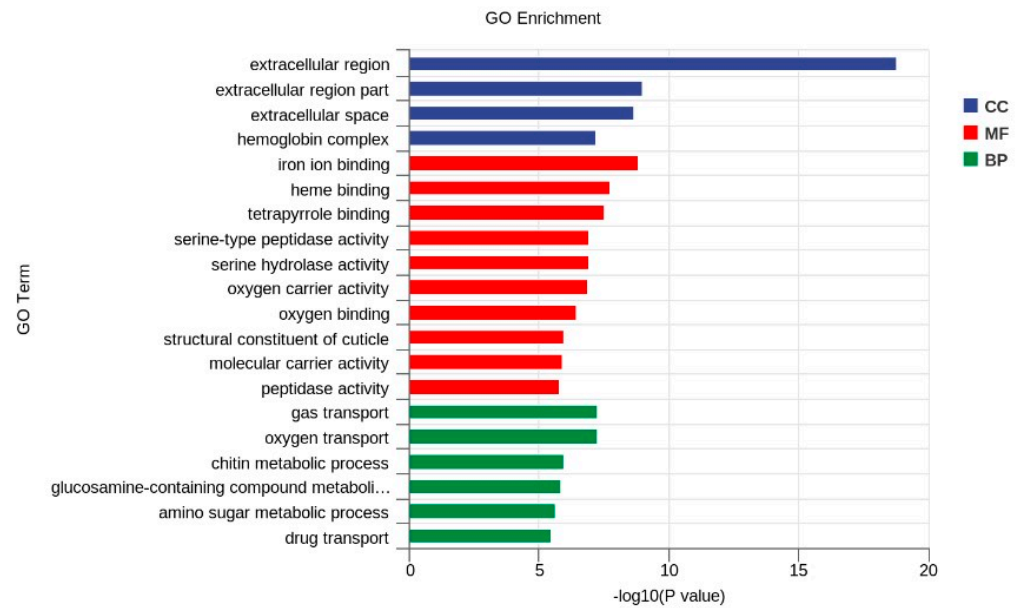
## C-vs-L



## C-vs-M

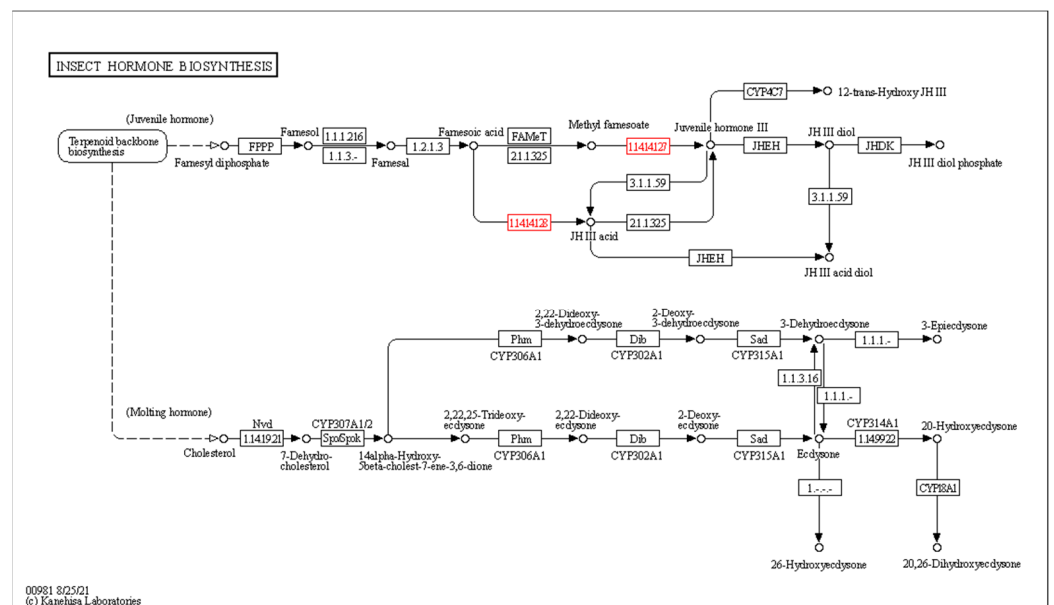


## C-vs-H

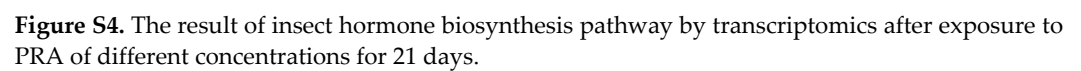
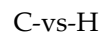


**Figure S3.** GO enrichment analysis of differentially expressed genes (DEGs) in three pravastatin sodium treated groups.

## C-vs-L



## C-vs-M



Control group



High PRA treatment group



**Figure S5.** Photographs of *D. magna* at 21 days.