

Table S1. Summary of other significantly changed liver lipids in mice of groups, when compared with wild-type control or wild-type GW7647 treated group after 26 weeks administration (Adult only).

Residues of metabolites	26 weeks (adult)								
	B <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	E <sup>A</sup>	F <sup>A</sup>	C <sup>B</sup>	D <sup>B</sup>	E <sup>B</sup>	F <sup>B</sup>
1. Total cholesterol (C <sub>18</sub> H <sub>3</sub> ), s	–		+	–	–	+	+		
2. Total cholesterol (C <sub>26</sub> H <sub>3</sub> , C <sub>27</sub> H <sub>3</sub> ), d									
4. Total cholesterol (C <sub>21</sub> H <sub>3</sub> ), d									
6. Free cholesterol (C <sub>19</sub> H <sub>3</sub> ), s	–			–	–	+	+		
7. Esterified cholesterol (C <sub>19</sub> H <sub>3</sub> ), s	–			–	–	+	+	+	
9. Fatty acid -CH <sub>2</sub> -CH <sub>2</sub> -COO	+		+	+	+	–	–	–	
10. Fatty acid -CH=CH-CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -COO	–		+	–	–	+	+	+	
11. Fatty acid -CH <sub>2</sub> -CH=CH-(CH <sub>2</sub> -CH=CH-) <sub>n</sub> CH <sub>2</sub>	+			+	+	–	–	–	–
12. Fatty acid (γ-CH <sub>2</sub> of ARA, EPA) -CH=CH-CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -COO			–						
13. Monoglycerides (FA, RH-CH <sub>2</sub> -CO-O-C <sub>2</sub> )	–			–	–	+	+		–
14. Fatty acid –CO-CH <sub>2</sub>	+		–	+	+	–	–		
18. Phosphatidylethanolamine -CH <sub>2</sub> -NH <sub>2</sub>	–			–	–	+	+		–
19. Sphingomyelin -CH <sub>2</sub> -N-(CH <sub>3</sub> ) <sub>3</sub>	–			–	–	+	+		
20. Phosphatidylcholine -CH <sub>2</sub> -N-(CH <sub>3</sub> ) <sub>3</sub>	–		–	–	–	+	+		–
21. Cholesterol 3-CHOH									
22. Phosphatidylcholine -N-CH <sub>2</sub> -	–			–	–	+	+		–
23. Total phospholipids, glycerol (C <sub>3</sub> H <sub>2</sub> )	–		–	–	–	+	+		–
25. Phosphatidylcholine -PO-CH <sub>2</sub> -	–		–	–	–	+			–
26. Esterified cholesterol 3-CHOH	–		–	–	–	+		+	
27. DG-2, Glycerophospholipid backbone 2-CH	–			–	–	+			–
30. Cholesterol C <sub>6</sub> H	–			–	–	+	+	+	

A, control, wild-type mice without treatment; B group, wild-type mice with GW7647 treatment; C group, *Ppara*-null mice without treatment; D group, *Ppara*-null mice with GW7647 treatment; E group, *hPPARA* mice without treatment; F group, *hPPARA* mice with GW7647 treatment. B<sup>A</sup>, C<sup>A</sup>, D<sup>A</sup>, E<sup>A</sup>, F<sup>A</sup>, corresponding groups compared with wild-type control; C<sup>B</sup>, D<sup>B</sup>, E<sup>B</sup>, F<sup>B</sup>, corresponding groups compared with wild-type GW7647 treated groups. +, significantly increased; –, significantly decreased.

Table S2. Summary of other significantly changed liver lipids in mice of groups, when compared with wild-type control or wild-type GW7647 treated group after ~75 weeks administration (Adult only).

Residues of metabolites	Long term (adult)								
	B <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	E <sup>A</sup>	F <sup>A</sup>	C <sup>B</sup>	D <sup>B</sup>	E <sup>B</sup>	F <sup>B</sup>
1. Total cholesterol (C <sub>18</sub> H <sub>3</sub> ), s	+			–					
2. Total cholesterol (C <sub>26</sub> H <sub>3</sub> , C <sub>27</sub> H <sub>3</sub> ), d									
4. Total cholesterol (C <sub>21</sub> H <sub>3</sub> ), d									
6. Free cholesterol (C <sub>19</sub> H <sub>3</sub> ), s				–					
7. Esterified cholesterol (C <sub>19</sub> H <sub>3</sub> ), s	–			–	–	+	+	+	+
9. Fatty acid -CH <sub>2</sub> -CH <sub>2</sub> -COO	+			+	+			+	
10. Fatty acid -CH=CH-CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -COO	+					+		+	
11. Fatty acid -CH <sub>2</sub> -CH=CH-(CH <sub>2</sub> -CH=CH-) <sub>n</sub> CH <sub>2</sub>				+	+				
12. Fatty acid (γ-CH <sub>2</sub> of ARA, EPA) -CH=CH-CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -COO									
13. Monoglycerides (FA, RH-CH <sub>2</sub> -CO-O-C <sub>2</sub> )	–			–					
14. Fatty acid –CO-CH <sub>2</sub>				+	+		+	+	
18. Phosphatidylethanolamine -CH <sub>2</sub> -NH <sub>2</sub>									
19. Sphingomyelin -CH <sub>2</sub> -N-(CH <sub>3</sub> ) <sub>3</sub>									
20. Phosphatidylcholine -CH <sub>2</sub> -N-(CH <sub>3</sub> ) <sub>3</sub>									
21. Cholesterol 3-CHOH									
22. Phosphatidylcholine -N-CH <sub>2</sub> -									
23. Total phospholipids, glycerol (C <sub>3</sub> H <sub>2</sub> )									
25. Phosphatidylcholine -PO-CH <sub>2</sub> -									
26. Esterified cholesterol 3-CHOH	–			–	–	+	+	+	+
27. DG-2, Glycerophospholipid backbone 2-CH	+					–	–	–	
30. Cholesterol C <sub>6</sub> H									

A, control, wild-type mice without treatment; B group, wild-type mice with GW7647 treatment; C group, *Ppara*-null mice without treatment; D group, *Ppara*-null mice with GW7647 treatment; E group, *hPPARA* mice without treatment; F group, *hPPARA* mice with GW7647 treatment. B<sup>A</sup>, C<sup>A</sup>, D<sup>A</sup>, E<sup>A</sup>, F<sup>A</sup>, corresponding groups compared with wild-type control; C<sup>B</sup>, D<sup>B</sup>, E<sup>B</sup>, F<sup>B</sup>, corresponding groups compared with wild-type GW7647 treated groups. +, significantly increased; –, significantly decreased.

Table S3. Summary of other significantly changed liver lipids in mice of groups, when compared with wild-type control or wild-type GW7647 treated group after 26 weeks administration (Perinatal + Adult).

Residues of metabolites	26 weeks (perinatal)								
	B <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	E <sup>A</sup>	F <sup>A</sup>	C <sup>B</sup>	D <sup>B</sup>	E <sup>B</sup>	F <sup>B</sup>
1. Total cholesterol (C <sub>18</sub> H <sub>3</sub> ), s	–			–		+	+		
2. Total cholesterol (C <sub>26</sub> H <sub>3</sub> , C <sub>27</sub> H <sub>3</sub> ), d									
4. Total cholesterol (C <sub>21</sub> H <sub>3</sub> ), d									
6. Free cholesterol (C <sub>19</sub> H <sub>3</sub> ), s	–		–	–		+	+	+	+
7. Esterified cholesterol (C <sub>19</sub> H <sub>3</sub> ), s	–		–	–		+	+	+	+
9. Fatty acid -CH <sub>2</sub> -CH <sub>2</sub> -COO	+		+	+		–	–	–	–
10. Fatty acid -CH=CH-CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -COO	–		–	–		+	+	+	+
11. Fatty acid -CH <sub>2</sub> -CH=CH-(CH <sub>2</sub> -CH=CH-) <sub>n</sub> CH <sub>2</sub>	+			+		–	–	–	–
12. Fatty acid (γ-CH <sub>2</sub> of ARA, EPA) -CH=CH-CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -COO	–					+	+	+	+
13. Monoglycerides (FA, RH-CH <sub>2</sub> -CO-O-C <sub>2</sub> )	–		–	–		+		+	+
14. Fatty acid –CO-CH <sub>2</sub>	+		+	+		–	–	–	–
18. Phosphatidylethanolamine -CH <sub>2</sub> -NH <sub>2</sub>	–		–	–		+			
19. Sphingomyelin -CH <sub>2</sub> -N-(CH <sub>3</sub> ) <sub>3</sub>	–		–			+			
20. Phosphatidylcholine -CH <sub>2</sub> -N-(CH <sub>3</sub> ) <sub>3</sub>	–		–	–		+		+	+
21. Cholesterol 3-CHOH									
22. Phosphatidylcholine -N-CH <sub>2</sub> -	–		–	–		+			
23. Total phospholipids, glycerol (C <sub>3</sub> H <sub>2</sub> )	–		–	–		+	+		+
25. Phosphatidylcholine -PO-CH <sub>2</sub> -	–		–	–		+		+	+
26. Esterified cholesterol 3-CHOH	–		–	–		+		+	+
27. DG-2, Glycerophospholipid backbone 2-CH	–		–	–		+		+	
30. Cholesterol C <sub>6</sub> H	–		+	+		+	+	+	+

A, control, wild-type mice without treatment; B group, wild-type mice with GW7647 treatment; C group, *Ppara*-null mice without treatment; D group, *Ppara*-null mice with GW7647 treatment; E group, *hPPARA* mice without treatment; F group, *hPPARA* mice with GW7647 treatment. B<sup>A</sup>, C<sup>A</sup>, D<sup>A</sup>, E<sup>A</sup>, F<sup>A</sup>, corresponding groups compared with wild-type control; C<sup>B</sup>, D<sup>B</sup>, E<sup>B</sup>, F<sup>B</sup>, corresponding groups compared with wild-type GW7647 treated groups. +, significantly increased; –, significantly decreased.

Table S4. Summary of other significantly changed liver lipids in mice of groups, when compared with wild-type control or wild-type GW7647 treated group after ~75 weeks administration (Perinatal + Adult).

Residues of metabolites	Long term (perinatal)								
	B <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	E <sup>A</sup>	F <sup>A</sup>	C <sup>B</sup>	D <sup>B</sup>	E <sup>B</sup>	F <sup>B</sup>
1. Total cholesterol (C <sub>18</sub> H <sub>3</sub> ), s		+			+				
2. Total cholesterol (C <sub>26</sub> H <sub>3</sub> , C <sub>27</sub> H <sub>3</sub> ), d									
4. Total cholesterol (C <sub>21</sub> H <sub>3</sub> ), d									
6. Free cholesterol (C <sub>19</sub> H <sub>3</sub> ), s									
7. Esterified cholesterol (C <sub>19</sub> H <sub>3</sub> ), s	–	+				+	+	+	
9. Fatty acid -CH <sub>2</sub> - CH <sub>2</sub> -COO		+	+	+			+	+	
10. Fatty acid -CH=CH-CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -COO						+	+	+	
11. Fatty acid -CH <sub>2</sub> -CH=CH-(CH <sub>2</sub> -CH=CH-) <sub>n</sub> CH <sub>2</sub>	+		+						–
12. Fatty acid (γ-CH <sub>2</sub> of ARA, EPA) -CH=CH-CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -COO			+				+		
13. Monoglycerides (FA, RH-CH <sub>2</sub> -CO-O-C <sub>2</sub> )									–
14. Fatty acid –CO-CH <sub>2</sub>			+	+	+		+	+	
18. Phosphatidylethanolamine -CH <sub>2</sub> -NH <sub>2</sub>									–
19. Sphingomyelin -CH <sub>2</sub> -N-(CH <sub>3</sub> ) <sub>3</sub>						+			
20. Phosphatidylcholine -CH <sub>2</sub> -N-(CH <sub>3</sub> ) <sub>3</sub>		+		+	+				–
21. Cholesterol 3-CHOH									
22. Phosphatidylcholine -N-CH <sub>2</sub> -					+				–
23. Total phospholipids, glycerol (C <sub>3</sub> H <sub>2</sub> )		–	–		+				–
25. Phosphatidylcholine -PO-CH <sub>2</sub> -					+			+	–
26. Esterified cholesterol 3-CHOH	–	+				+	+	+	
27. DG-2, Glycerophospholipid backbone 2-CH					+				–
30. Cholesterol C <sub>6</sub> H		+	+	+	+	+	+	+	+

A, control, wild-type mice without treatment; B group, wild-type mice with GW7647 treatment; C group, *Ppara*-null mice without treatment; D group, *Ppara*-null mice with GW7647 treatment; E group, *hPPARA* mice without treatment; F group, *hPPARA* mice with GW7647 treatment. B<sup>A</sup>, C<sup>A</sup>, D<sup>A</sup>, E<sup>A</sup>, F<sup>A</sup>, corresponding groups compared with wild-type control; C<sup>B</sup>, D<sup>B</sup>, E<sup>B</sup>, F<sup>B</sup>, corresponding groups compared with wild-type GW7647 treated groups. +, significantly increased; –, significantly decreased.