

APPENDIX for

Hepatic ASPG-mediated lysophosphatidylinositol catabolism impairs systemic insulin signal transduction

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Appendix Table S1. Clinical characteristics of human cohort 1 study

Human cohort 1	n=69
Male/Female	55/14
Age (years)	56.43 ± 13.71
BMI (kg/m ²)	23.87 ± 3.44
AST(U/L)	29.88 ± 12.44
ALT(U/L)	34.49 ± 25.88
Fasting Glucose (mmol/L)	6.18 ± 2.42
Serum Triglyceride (mmol/L)	1.93 ± 1.69
Serum Insulin (mU/L)	14.35 ± 11.75

Data are presented as the mean ± SD.

Appendix Table S2. Clinical characteristics of the patients with MASLD

MASLD	HOMA-IR< 2	HOMA-IR≥ 2	P
Number	14	18	/
Age (years)	52.64 ± 9.18	56.56 ± 11.47	/
Male/Female	13/1	17/1	/
BMI (kg/m ²)	24.34 ± 3.13	26.72 ± 3.69	0.063
Glucose (mmol/L)	4.12 ± 0.26	8.57 ± 1.61	<0.001
Serum Triglyceride (mmol/L)	1.26 ± 0.57	2.40 ± 1.93	0.042
AST(U/L)	35.71 ± 12.00	54.56 ± 28.65	0.028
ALT(U/L)	32.71 ± 16.59	58.89 ± 44.59	0.046
Serum Insulin (mU/L)	8.20 ± 2.82	22.79 ± 5.65	<0.001

Data are presented as the mean ± SD. P: unpaired two-tailed Student's t-test.

Appendix Table S3. Primer sequences for qRT-PCR.

Gene	Sequence (5'-3')
Human Aspg	F: AACCGGGCAACCAAGGTAG R: CCAGCTCCCTGTTGATTGTGA
Human Pnpla7	F: GGAAAAGCGTGATGGTTGC R: GAGCAGGTCCTTCTTGGA
Human Pla2g6	F: CATCACAGCCGTATCATCAGC R: TCGGTGACATCCATCTGAGTG
Human Enpp2	F:ACAACGAGGAGAGCTGCAAT R:AGAAGTCCAGGCTGGTGAGA
Human Abdh16a	F:TGCCGTTTTCTCACTATGCTG R:CCGATGTGTTGCTTCCAAGATG
Human Abdh12	F:GTCCTGGAATACAGGCCAAAC R: CAATGGTCACGTCTTCCTCTG
Human Pnpla6	F:TCCTCCCTCGTGGATACCTC R:GTGGGCGTCTCTTTCTGGA
Human Pnpla8	F:TCCTTCTGCGATACCTGATGT R:CTCGCTGAAGAGATAAACGCTT
Human Ddhd1	F:CCTGCCTCAGTGACGAGAAC R:AAGCCGGGTACGTTTCCTTTC
Human Ddhd2	F:ATGTCATCAGTGCAGTCACAAC R:ACTGGTTCATACAAGCTGCCA
Human Lypla1	F:CCTTTGCAGGTATCAGAAGTTCA R:GCTGCCTGTTTAATCCCAGAT
Human Pla1a	F:CAGACACCGACAATTTGGGTA R:CCAGGGCGCTGATGTAGAG
Human Sepp1	F:GAAGACCTGCGAGTAAACTGA R:ACAAGACGGCCACATCTATCATA
Human β -actin	F:CATGTACGTTGCTATCCAGGC R:CTCCTTAATGTCACGCACGAT
Mouse Sepp1	F:AGCTCTGCTTGTTACAAAGCC R:CAGGTCTTCCAATCTGGATGC
Mouse FetuinA	F:ATCCGCTCCACAAGGTACAG R:GGTCCAAAGCATGGCAAGT
Mouse FetuinB	F:CTCCGACTTCTGGTGCTCTG R:CAGGGCAAATCCTGCAACTG
Mouse Lect2	F:CCCTGTCAGGAACTTTTCATCC R:CGGTAGTAAACACCGTTCAGGT
Mouse Fgl1	F:CCCACAACAATCCTCATTTTCAGC R:ACACCTGGGTGATGCCTTTG
Mouse Aspg	F:AGGCGGAGTATTGGTACCTG R:TGTGGGCCTGTGCATACTCTT
Mouse Fasn	F:GGAGGTGGTGATAGCCGGTAT R:TGGGTAATCCATAGAGCCCAG

Mouse Dgat2	F:GCGCTACTTCCGAGACTACTT R:GGGCCTTATGCCAGGAACT
Mouse Acc2	F:CGCTCACCAACAGTAAGGTGG R:GCTTGGCAGGGAGTTCCTC
Mouse Cd36	F:ATGGGCTGTGATCGGAACTG R:TTTGCCACGTCATCTGGGTTT
Mouse Fabp1	F:ATGAACTTCTCCGGCAAGTACC R:CTGACACCCCCTTGATGTCC
Mouse Gpat1	F:ACAGTTGGCACAATAGACGTTT R:CCTTCCATTTCAAGTGTTCAGA
Mouse Cpt1a	F:CTCCGCCTGAGCCATGAAG R:CACCAGTGATGATGCCATTCT
Mouse Scd1	F:TTCTTGCGATACTCTGGTGC R:CGGGATTGAATGTTCTTGTCGT
Mouse Pck1	F:CTGCATAACGGTCTGGACTTC R:CAGCAACTGCCCGTACTCC
Mouse Pcx	F:CTGAAGTTCCAAACAGTTCGAGG R:CGCACGAAACACTCGGATG
Mouse G6pc1	F:CGACTCGCTATCTCCAAGTGA R:GTTGAACCAGTCTCCGACCA
Mouse Il-6	F:TAGTCCTTCCTACCCCAATTTCC R:TTGGTCCTTAGCCACTCCTTC
Mouse Tnf α	F:CCCTCACACTCAGATCATCTTCT R:GCTACGACGTGGGCTACAG
Mouse Nf-kb	F:AGGCTTCTGGGCCTTATGTG R:TGCTTCTCTCGCCAGGAATAC
Mouse Col1a1	F:GCTCCTCTTAGGGGCCACT R:CCACGTCTCACCATTGGGG
Mouse Col3a1	F:CTGTAACATGGAACTGGGGAAA R:CCATAGCTGAACTGAAAACCACC
Mouse Pla2g6	F:GCAAGCTGATTACCAGGAAGG R:GAGAGAAGAGGGGGTGAGTTG
Mouse Gpr55	F:CTGGCAGTCCATATCCCCAC R:GCACCAGCAGTAAATCGAAAACA
Mouse Mboat7	F:TACCGCACCTACCTGGATTG R:AGAAGACCGGGATCATGTAGAA
Mouse Rplp0	F:GCTTCGGCAGCACATATACTAAAAT R:CGCTTCACGAATTTGCGTGTGTCAT

Appendix Table S4. Target sequences for shRNA and siRNA.

Gene	Sequence (5'-3')
Mouse shFoxo1	CCGCCAAACACCAAGTCTAAAT
Mouse Ptp1b siRNA	CCAGGACAUUCGACAUGAAUU
Mouse shSepp1	GGTGTCTCAGAACACATCGCA

Appendix Table S5. Primer sequences for ChIP-qPCR.

Promoter	Sequence(5'-3')
Mouse Aspg (-2008~-1803)	F:TCTCCTGGGATTAAAGGCCTG R:GGACCCTGTCTCAACAAAACCA
Mouse Aspg (-1729~-1494)	F:CTGGCTGATCTTCCTTCTTCCTTG R:TGCTACCAGATGCAAGGACG
Mouse Aspg (-1006~-784)	F:GCTCATACTGCCTGACATGTTTG R:GCGGTCAAGTTCTTGTTTCAGGGA