

Supplementary materials

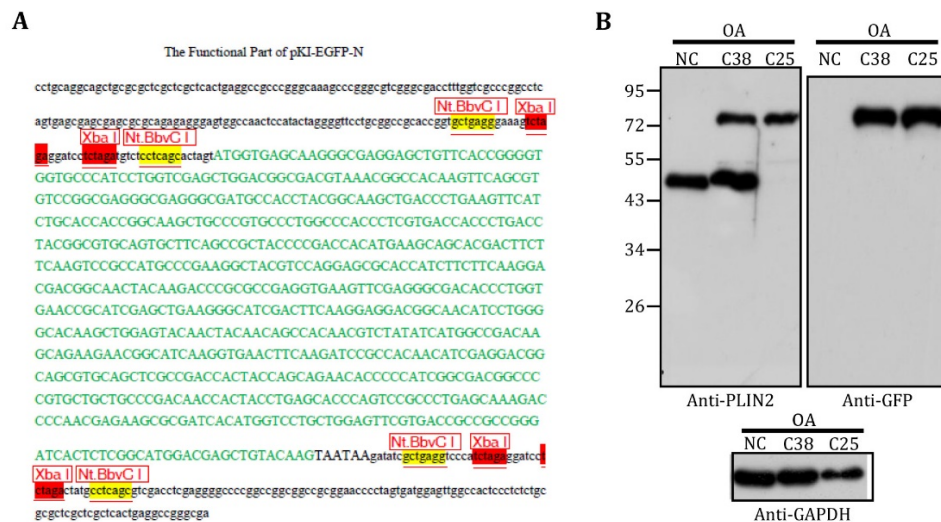


Fig. S1 Construction of PLIN2-EGFP knocked-in (KI) C2C12 cells

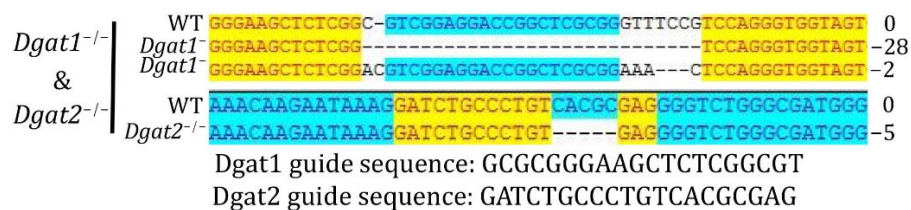


Fig. S2 Verification of Dgat1 and Dgat2 double knocked-out (DKO) C2C12 cells

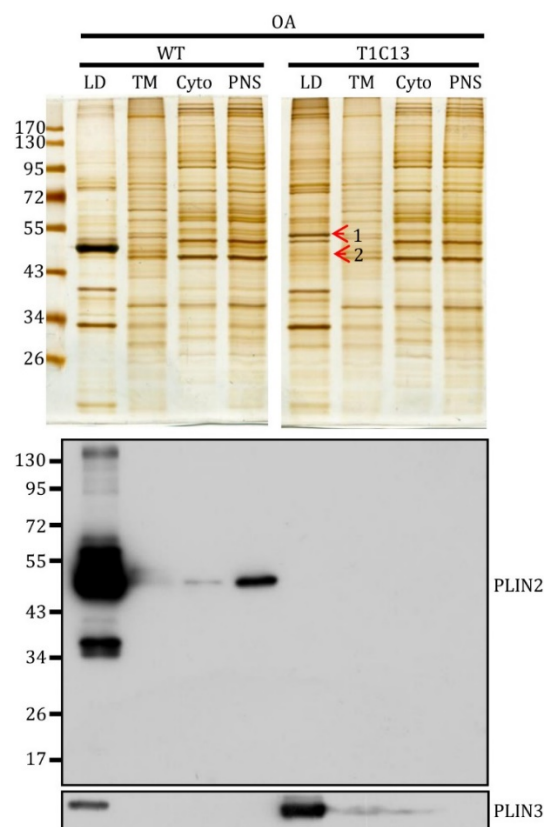


Fig. S3 LD protein profiles of WT and PLIN2 KO C2C12 cells

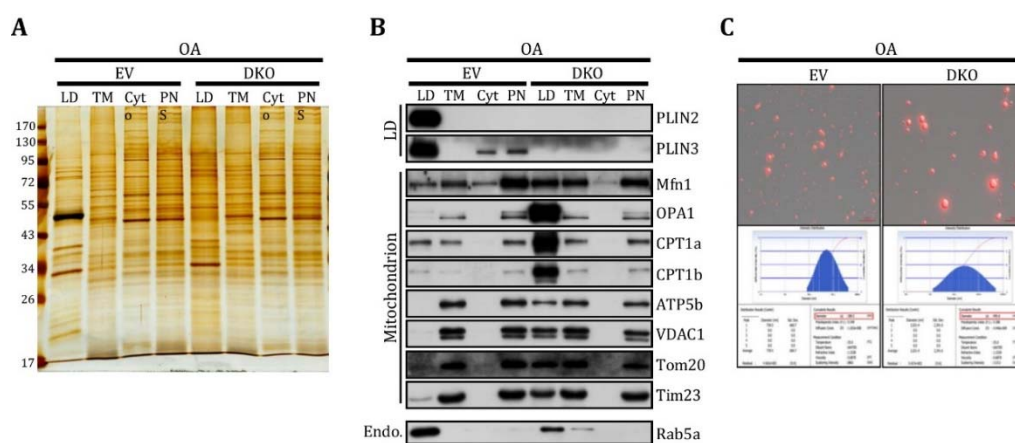


Fig. S4 LD profiles of EV, PLIN2 and PLIN3 double KO C2C12 cells

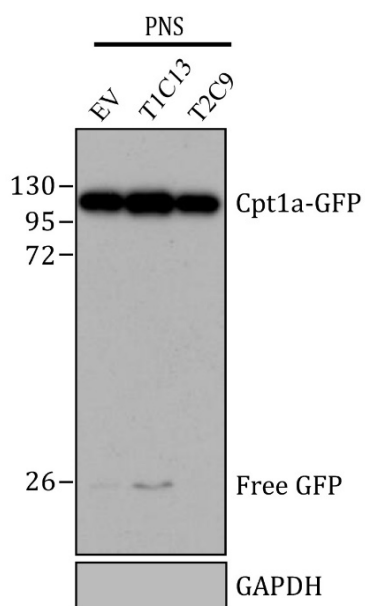


Fig. S5 The expression level of Cpt1a-EGFP from EV and PLIN2 KO C2C12 cells by Western blot analysis

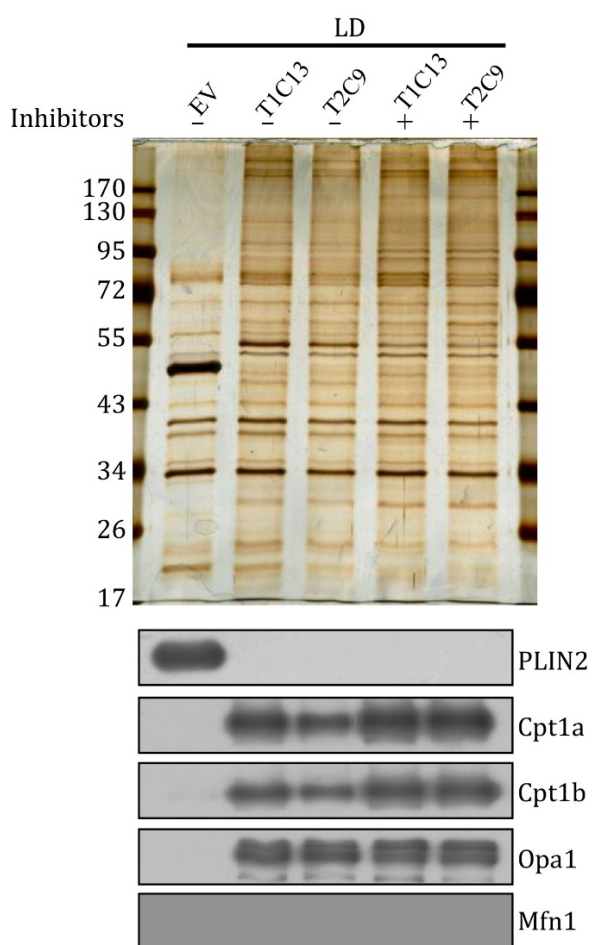


Fig. S6 The close interaction of LDs and mitochondria was not due to increased TAG hydrolysis in PLIN2 KO C2C12 cells

Table S1 Information of antibodies used in this study

Protein	Host	Manufacturer	Category NO.
GAPDH	Mouse	Millipore	MAB374
PLIN2	Rabbit	Abcam	ab108323
PLIN3	Rabbit	Abclonal	A6822
Bip	Mouse	BD Transduction	610979
Tim23	Mouse	BD Transduction	611223
Lamp1	Rabbit	CST	3243s
Rab5a	Rabbit	CST	3547
Acs11	Rabbit	CST	4047s
ATGL	Rabbit	CST	2138s
Cav-1	Rabbit	BD	610060
CGI-58	Rabbit	Abclonal	A6801
GFP	Rabbit	SantaCruz	sc-9996
p-HSL	Rabbit	CST	4126S
HSL	Rabbit	CST	4107S
Cpt1a	Mouse	Abcam	ab128568
Cpt1b	Rabbit	Abclonal	A6796
Opa1	Mouse	BD Transduction	612607
Mfn1	Mouse	Sigma	WH0055669M4
VDAC1	Rabbit	Millipore	AB10527
PDI	Rabbit	Abclonal	A0692
b-tubulin	Mouse	Bioworld	BS1482M
Tom20	Mouse	BD Transduction	612278
ATP5b	Mouse	Abcam	ab14730
HRP-conjugated anti-mouse IgG	Goat	ZSGB-BIO	ZB-2305
HRP-conjugated anti-rabbit IgG	Goat	ZSGB-BIO	ZB-2301

Table S2 Sequences of primers used in this study

Gene	Vector	Restriction	Remark	Forward (5'-3')	Reverse (5'-3')
Plin2	pX260a	BbsI	KO-T1	CACCGATGGTGCAGTTCATGAACAG	AAACCTGTTTCATGAACTGCACCATC
Plin2	pX260a	BbsI	KO-T2	CACCGCCCCCTTGCAGGCATAGGTAT	AAACATACCTATGCCTGCAAGGGGC
Atgl	pQCXIP	NotI/AgeI	OE with myc tag	TAGCGGCCGCGCCACCATGTTCCC	TAACCGGTTACAGATCCTCTTCTGAGATG
				GAGGGAGACCAAGTGG	AGTTTTTGTTCGCAAGGCGGGAGGCCAGG
Plin2	pQCXIP	NotI/EcoRI	OE with myc tag	ATGCGGCCGCGCCACCATGGCAGCA	ATTTAATTAATCAGCGGGTTAAACTCAAT
				GCAGTA	
Plin2	pX260a	BbsI	KO for EGFP KI	CACCGATCATGCTCTGGTGACAAGG	AAACCTTGTTCACAGAGCATGATC
Plin2	pKI-EGFP-N	XbaI/Nt.BbvCI	KI L-arm	GGGAAAGUATGACAGCTACAGTGTAGGAGACAUCTCTGAGCTTTGACCTCAGACT	TTCA
Plin2	pKI-EGFP-N	XbaI/Nt.BbvCI	KI R-arm	GGTCCCAUACCAATCTTGTCCACCA	GGCATAGUTTTGAGGTAGAGTTCCATGT
				GAGCATGATGTT	
Plin2	None	None	KI-test	TCTACTCCGTATTCCGCAATGC	TTCGGTCCAGACAGACGTTT
Dgat1	pX260a	BbsI	KO	CACCGCGCGGGAAGCTCTCGGCGT	AAACACGCCGAGAGCTTCCCGCGC
Dgat1	None	None	KO-test	GAGGCCGTTGCTCAGGGTCCAG	CGGGGCTCACATTTCCTGCTAC
Dgat2	pX260a	BbsI	KO	CACCGATCTGCCCTGTACGCGAG	AAACCTCGCGTGACAGGGCAGATC
Dgat2	None	None	KO-test	GGAGGCCGTTGCTCAGGGTCCAGA	CACCTGGGTGACCTTGGCAAGTGA
Actin	None	None	qPCR	TCCTGTGGCATCCATGAAACT	TGGTACCACCAGACAGCACTGT
Plin2	None	None	qPCR	CTCTCCTGTTAGGCGTCTCTT	CCTTCTCGGCCATCTCACAC
Plin3	pX260a	BbsI	KO	CACCGCAACACGATCCACCACGCT	AAACAGCGTGGTGGATCGTGTTCG
Cpt1a	pEGFP-N1	XhoI/EcoRI	OE with EGFP tag	ATCTCGAGGCCACCATGGCAGAGG	TAGAATTTCGCTTTTGGAAATGGCCGTGA
				CTCACCAAGCTG	

Table S3 Mass spectrum result of the most abundant band (PLIN2) in LDs of OA treated C2C12 cells

BAND NO.	PROTEIN NAME	PEPTIDE NO. (≥ 7)	MW (kDa)	ACCESSION
1	PLIN2	44	46.64	NP_031434
	Probable saccharopine dehydrogenase	10	47.12	NP_848768
	Eukaryotic initiation factor 4A-I isoform 1	8	46.15	NP_659207
	Ancient ubiquitous protein 1	7	49.35	NP_031543
	Epoxide hydrolase 1	7	52.57	NP_034275

Table S4 Mass spectrum result of LD proteins isolated from WT and PLIN2 KO C2C12 after treated with OA

BAND NO.	PROTEIN NAME	PEPTIDE NO. (≥ 7)	MW (kDa)	ACCESSION
1	PLIN2	44	46.64	NP_031434
	Probable saccharopine dehydrogenase	10	47.12	NP_848768
	Eukaryotic initiation factor 4A-I isoform 1	8	46.15	NP_659207
	Ancient ubiquitous protein 1	7	49.35	NP_031543
	Epoxide hydrolase 1	7	52.57	NP_034275
BAND NO.	PROTEIN NAME	PEPTIDE NO. (TOP 6)	MW (kDa)	ACCESSION
1	PLIN3	31	47.26	NP_031434
	Fatty acyl-CoA reductase 1	25	59.43	NP_081655
	Tubulin beta-2C chain	23	49.83	NP_666228
	Tubulin beta -5 chain	22	49.67	NP_035785
	Tubulin beta-2A chain	19	49.9	NP_033476
	Tubulin beta-2B chain	19	49.95	NP_076205
2	Serpin H1 precursor	17	46.53	NP_033955
	Calcium-binding mitochondrial carrier protein SCaMC-1	14	52.9	NP_766273
	Vimentin	12	53.68	NP_035831
	Tubulin beta -5 chain	12	49.67	NP_035785
	ABHD5	11	39.15	NP_080455
	PLIN3	11	47.26	NP_080112