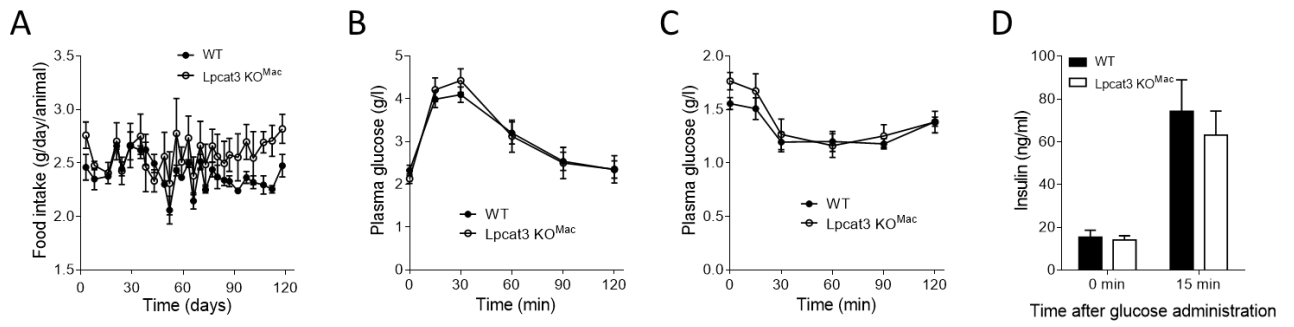
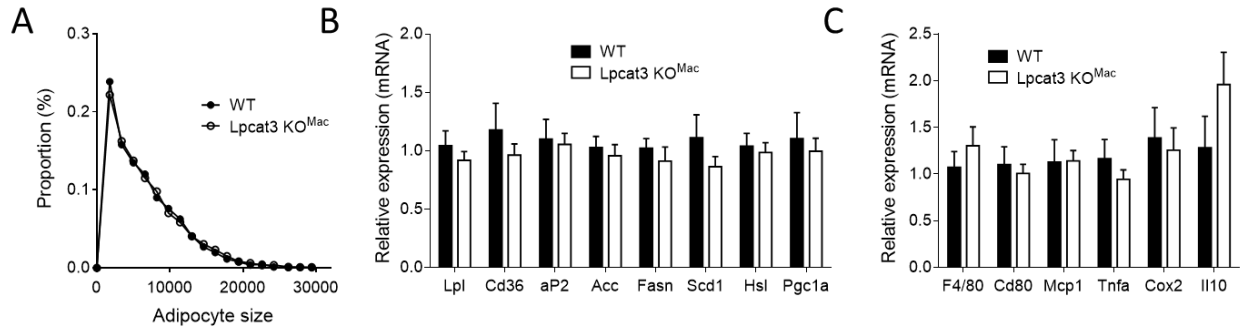


Molecular species	logfold	fold	WT1	WT2	WT3	WT4	Lpcat3 KOMAC1	Lpcat3 KOMAC2	Lpcat3 KOMAC3	Lpcat3 KOMAC4	Molecular species	logfold	fold	WT1	WT2	WT3	WT4	Lpcat3 KOMAC1	Lpcat3 KOMAC2	Lpcat3 KOMAC3	Lpcat3 KOMAC4
342 PI	-0.24504	0.84379	0.27922	0.18497	0.30126	0.20446	0.18911	0.21163	0.27204	0.18862	p18:0/20:3 pPE	-0.61030	0.65506	0.48828	0.43331	0.59663	0.56792	0.38743	0.39071	0.33976	0.24855
341 PI	-0.24073	0.84632	0.27920	0.49306	0.80994	0.60144	0.66134	0.50544	0.52904	0.55269	p18:1/18:2 pPE	-0.08814	1.06005	0.11125	0.10199	0.13021	0.11655	0.11913	0.13171	0.13274	0.10860
340 PI	-0.25926	0.83552	0.11902	0.13681	0.21822	0.24934	0.10866	0.16752	0.20824	0.12000	p18:1/18:1 pPE	-0.08713	0.94140	0.47563	0.54031	0.76663	0.74584	0.59436	0.71952	0.63846	0.52202
364 PI	-0.05334	1.03766	2.4237	2.26234	1.87350	1.95770	2.49605	1.96674	1.87877	2.50566	p18:0/18:2 pPE	-0.18386	0.88035	0.15288	0.14996	0.18777	0.22059	0.13382	0.18316	0.16153	0.14759
363 PI	-0.03712	0.97460	0.61595	0.49557	0.51369	0.53412	0.52133	0.49884	0.55585	0.52845	p18:1/18:0 pPE	-0.32234	0.79022	0.01755	0.01831	0.01441	0.01523	0.01423	0.01240	0.01495	0.01076
362 PI	-0.26343	0.83311	3.75220	2.89442	4.41248	3.20365	3.01667	2.76129	3.20685	2.89760	p18:0/18:1 pPE	-0.29675	0.81999	0.59225	0.60839	0.86169	0.84558	0.51945	0.69094	0.65073	0.50608
361 PI	-0.20853	0.86542	1.39687	1.17933	1.98602	1.57498	1.39458	1.38545	1.55387	0.97736	352 PE	0.33668	1.26285	0.26800	0.22604	0.22255	0.17592	0.29543	0.28359	0.25704	0.29103
360 PI	0.07013	1.05023	0.40432	0.03943	0.03969	0.05050	0.02762	0.04015	0.03173	0.06989	p18:0/20:0 pPE	-0.08384	0.57104	0.00727	0.00712	0.01139	0.01407	0.00546	0.00757	0.00731	0.00243
385 PI	0.27518	1.21015	6.95166	6.20464	6.75987	6.32189	8.21630	7.65013	7.22587	8.15945	p18:0/18:0 pPE	-0.38918	0.77422	0.02476	0.01962	0.02703	0.03071	0.01692	0.01952	0.01288	0.01984
384 PI	0.02512	1.01756	68.65970	71.47577	67.69715	70.70192	71.72045	70.25511	69.69983	71.31569	351 PE	0.19448	1.14431	0.73018	0.69081	0.67653	0.63207	0.75983	0.73490	0.78814	0.80662
407 PI	0.26433	1.20108	0.19495	0.19294	0.25657	0.28691	0.32307	0.29523	0.30599	0.19442	364 PE	-0.07755	0.95096	2.25679	2.26267	2.14248	2.24078	1.51793	2.25132	1.88247	1.98418
406 PI	-0.27132	0.82856	1.78002	1.49211	1.54078	1.56295	1.84747	1.29094	1.29094	1.31601	363 PE	0.09692	1.06949	0.99004	0.86764	0.90130	0.80592	0.89166	1.01993	0.95229	0.94873
405 PI	-0.32037	0.80086	10.74637	10.17437	11.33414	10.50482	6.71556	10.10742	9.78308	8.09870	362 PE	0.22116	1.16567	0.59588	0.52475	0.60042	0.51823	0.62127	6.77933	6.57334	6.42184
404 PI	0.38706	1.30773	2.30461	2.19862	2.18468	2.45554	3.22426	2.86422	2.95455	2.63949	361 PE	0.10837	1.07801	0.91991	0.93146	0.92970	0.94805	0.94678	9.70159	10.68593	10.19461
C12:0	-0.28841	0.81881	1.57729	1.35149	1.17403	1.27944	1.06408	0.67083	1.46300	1.26843	p18:1/20:6 pPE	-0.22295	0.85681	3.17803	3.04286	3.27508	3.05951	2.78195	2.74883	2.70558	2.52130
C14:0	0.20467	1.01725	1.75980	1.78789	1.55087	1.75647	1.93017	1.71772	1.64197	1.68340	p18:1/20:5 pPE	-1.56795	0.33729	0.16908	0.15048	0.28015	0.22440	0.06630	0.09510	0.07135	0.04521
C15:0	-0.20746	0.86594	0.45815	0.51157	0.39809	0.53341	0.50651	0.39631	0.39631	0.35412	p18:0/22:5 pPE	0.00601	1.00418	0.28433	0.27016	0.26851	0.24201	0.28044	0.26169	0.26659	0.26403
C16:1 n-9	-0.26738	0.83083	0.48593	1.06577	0.36583	0.47335	0.59632	0.40899	0.42684	0.50427	p18:1/20:4 pPE	-0.53249	0.69136	0.32437	0.40865	0.37887	0.41526	0.26515	0.26215	0.24981	0.24026
C16:1 n-7	0.46131	1.37679	0.23282	0.20624	0.20292	0.17632	0.24731	0.25872	0.15614	0.15120	p18:0/20:0 pPE	-1.85930	0.27561	0.19431	0.17921	0.20207	0.23559	0.66472	0.07776	0.05811	0.05020
C16:0	-0.24122	0.99143	48.24271	47.75893	48.27577	49.74666	48.54599	49.26135	49.59007	47.64523	p18:0/22:4 pPE	0.81442	1.75859	1.23177	1.29466	1.08442	1.12952	1.26609	1.99266	2.04545	2.13244
C17:0	0.08666	1.06191	0.44322	0.40816	0.39294	0.40359	0.52022	0.42912	0.45173	0.42747	p18:1/20:0 pPE	0.54476	1.45878	0.71643	0.79179	0.74751	0.74897	0.96429	1.08478	1.16436	1.16976
C18:1 n-9	0.05084	1.03587	2.44874	2.93555	2.90598	3.23240	2.85830	2.47858	2.01891	3.21117	p18:0/20:4 pPE	-0.81108	0.56996	3.82918	4.26820	3.97765	4.70928	2.48654	2.54622	2.42121	2.31228
C18:1 n-7	0.08954	1.00239	1.11803	1.05966	1.15186	1.09256	1.31443	1.21721	0.93066	1.28166	p18:0/22:3 pPE	-0.07394	0.94640	0.19533	0.24138	0.32277	0.24700	0.19759	0.22223	0.24159	0.20155
C18:0	-0.01938	0.98566	39.24501	37.24411	37.47420	37.29541	37.91644	37.28071	38.32450	35.64347	p18:1/20:2 pPE	-0.28859	0.83013	0.05812	0.05264	0.07871	0.07059	0.04682	0.06862	0.05244	0.04801
C18:2 n-6	-0.18153	0.95163	0.95053	1.15073	0.78276	0.64995	0.87007	0.79057	0.77913	0.92324	p18:0/20:3 pPE	-0.46369	0.72513	0.36558	0.38100	0.45425	0.48612	0.28747	0.34156	0.31750	0.27671
C18:3 n-6	0.07560	1.81629	0.01023	0.01013	0.00824	0.00816	0.01242	0.00913	0.00930	0.03917	p18:0/22:2 pPE	-0.30452	0.80971	0.03037	0.03555	0.04343	0.04191	0.02311	0.03330	0.03876	0.02531
C18:3 n-3	-0.54769	0.68411	0.00913	0.01470	0.00568	0.00379	0.00596	0.00515	0.00496	0.00671	p18:1/20:1 pPE	-0.47397	0.71998	0.05221	0.05008	0.06860	0.08497	0.03919	0.06690	0.05332	0.03792
C19:0	-0.02841	0.83863	0.66321	0.61004	0.05911	0.06661	0.07504	0.06103	0.06277	0.06079	p18:0/22:5 pPE	-0.47397	0.71998	0.05221	0.05008	0.06860	0.08497	0.03919	0.06690	0.05332	0.03792
C20:0	-0.13327	0.91176	0.43542	0.37378	0.37233	0.38000	0.36625	0.34813	0.38094	0.32759	p18:0/22:1 pPE	-0.72695	0.60418	0.03609	0.04336	0.05687	0.06096	0.02739	0.03663	0.03533	0.01985
C20:1 n-9	0.17436	1.12847	0.05276	0.09677	0.14677	0.11631	0.12440	0.11515	0.10911	0.11495	p18:1/20:0 pPE	-0.54664	0.68461	0.00650	0.01068	0.01312	0.01137	0.00760	0.00869	0.00654	0.00563
C20:1 n-6	0.56513	1.23469	0.07568	0.06654	0.14822	0.07779	0.12405	0.10331	0.06957	0.20708	p18:0/20:1 pPE	-0.66210	0.63196	0.04718	0.04933	0.08310	0.08687	0.03582	0.05427	0.05273	0.02559
C20:1 n-3	0.30045	1.47942	0.06494	0.09654	0.17615	0.08717	0.14718	0.11242	0.06973	0.28413	386 PE	0.17273	1.09220	1.79623	1.72729	1.66775	1.35350	1.84662	1.89141	1.67407	1.73705
C20:1 n-0	0.48904	1.40352	0.75022	1.19726	1.39533	1.17490	1.74235	1.52149	1.07252	2.02827	385 PE	-0.04218	0.97118	0.97118	3.71989	3.67964	3.80647	3.58223	3.65837	3.81790	3.46880
C20:1 n-3	1.22408	1.33606	0.05824	0.08117	0.12818	0.06902	0.08428	0.10331	0.04170	0.52707	384 PE	-0.18368	0.88945	13.58354	14.38228	12.74229	14.15310	12.61210	11.96986	11.77665	12.40255
C21:0	-0.14672	0.90330	0.01397	0.01417	0.01076	0.01550	0.01266	0.01087	0.01236	0.01325	383 PE	0.18159	1.82247	1.74140	1.59772	1.60427	1.27865	1.55892	1.32214	1.35795	1.32214
C22:0	0.13363	1.09721	0.02987	0.03009	0.02793	0.03230	0.03745	0.02793	0.02582	0.04066	382 PE	-0.20365	0.86835	0.65270	0.64585	0.85738	0.85021	0.62159	0.67460	0.72633	0.58787
C22:1 n-9	-0.42261	0.74608	0.04141	0.02027	0.06630	0.04820	0.02536	0.01935	0.04241	0.04367	381 PE	-0.30857	0.80744	0.18497	0.20185	0.21052	0.21478	0.13922	0.17571	0.18124	0.15230
C22:1 n-7	0.42347	1.34115	0.00382	0.00447	0.01041	0.00607	0.00953	0.00762	0.00543	0.01063	p18:1/22:5 pPE	0.06254	1.04340	1.07607	1.00583	0.97549	0.89164	1.05932	0.98578	0.98979	1.04638
C22:4 n-6	0.24623	1.18619	0.41757	0.30068	1.01404	0.83354	1.30452	0.86006	0.79846	0.55855	p18:0/22:4 pPE	-0.44622	0.73396	1.36149	1.30535	1.29981	1.29616	1.30060	0.90167	0.90674	0.90631
C22:5 n-6	0.25020	1.18937	0.01838	0.03962	0.02861	0.04551	0.03938	0.04470	0.03662	0.03645	p18:1/22:4 pPE	1.00800	2.00111	0.50593	0.59411	0.44911	0.44467	0.97199	0.87475	1.01300	1.12291
C22:5 n-3	0.26433	1.20108	0.43531	0.71918	0.87352	0.57595	0.92452	0.81126	0.53860	0.85799	p18:0/22:5 pPE	-0.21892	0.85921	1.34528	1.48015	1.25366	1.24084	1.01615	1.04723	1.14300	1.20802
C22:6 n-3	0.33781	1.26384	0.42395	0.69316	0.81159	0.53913	0.82626	0.72367	0.47185	1.06077	p18:0/24:4 pPE	0.30684	1.23699	0.09529	0.09151	0.07375	0.07455	0.09815	0.09166	0.10578	0.11884
C24:5	0.11738	1.08508	0.00677	0.01097	0.01105	0.01040	0.01215	0.00991	0.00910	0.01135	p18:1/22:3 pPE	0.62088	1.53781	0.20127	0.24201	0.19194	0.19196	0.27569	0.28560	0.53661	0.35714
C24:6 n-3	-0.06139	0.95834	0.00923	0.01262	0.01544	0.00893	0.01002	0.01043	0.00796	0.01587	p18:0/22:4 pPE	0.65255	1.57194	0.48219	0.53414	0.37149	0.41362	0.70071	0.60118	0.71432	0.81556
C24:4	0.68885	1.61200	0.00650	0.01317	0.01233	0.01690	0.02382	0.02516	0.02328	0.00656	p18:0/24:4 pPE	-0.11222	0.92516	0.00858	0.01637	0.01191	0.02091	0.00149	0		



Supplemental Figure 2 : Metabolic parameters in *Lpcat3KO^{Mac}* mice fed a HFD for 16 Weeks (A) Food intake during 16 weeks of HFD. (B and C) Oral glucose tolerance test (B) and insulin tolerance test (C) of 6 hours fasting WT and *Lpcat3KO^{Mac}* mice (D) Insulin secretion after oral glucose administration. (n=7vs13) Data are expressed as mean +/- SEM.



Supplemental Figure 3 : Analysis of adipose tissue from *Lpcat3KO^{Mac}* mice after 16 weeks of HFD. (A) Adipocyte size using adipose tissue histological sections. (B and C) mRNA levels of genes involved in adipocyte metabolism (B) and adipose tissue inflammation (C). n=7vs13, Data are expressed as mean + SEM.