

Supplemental information

**Behavioral, metabolic, and lipidomic
characterization of the 5xFADxTg30
mouse model of Alzheimer's disease**

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Figure S1: Animal flow chart of Cohort 1: behavioural cohort related to figure 1 and 2

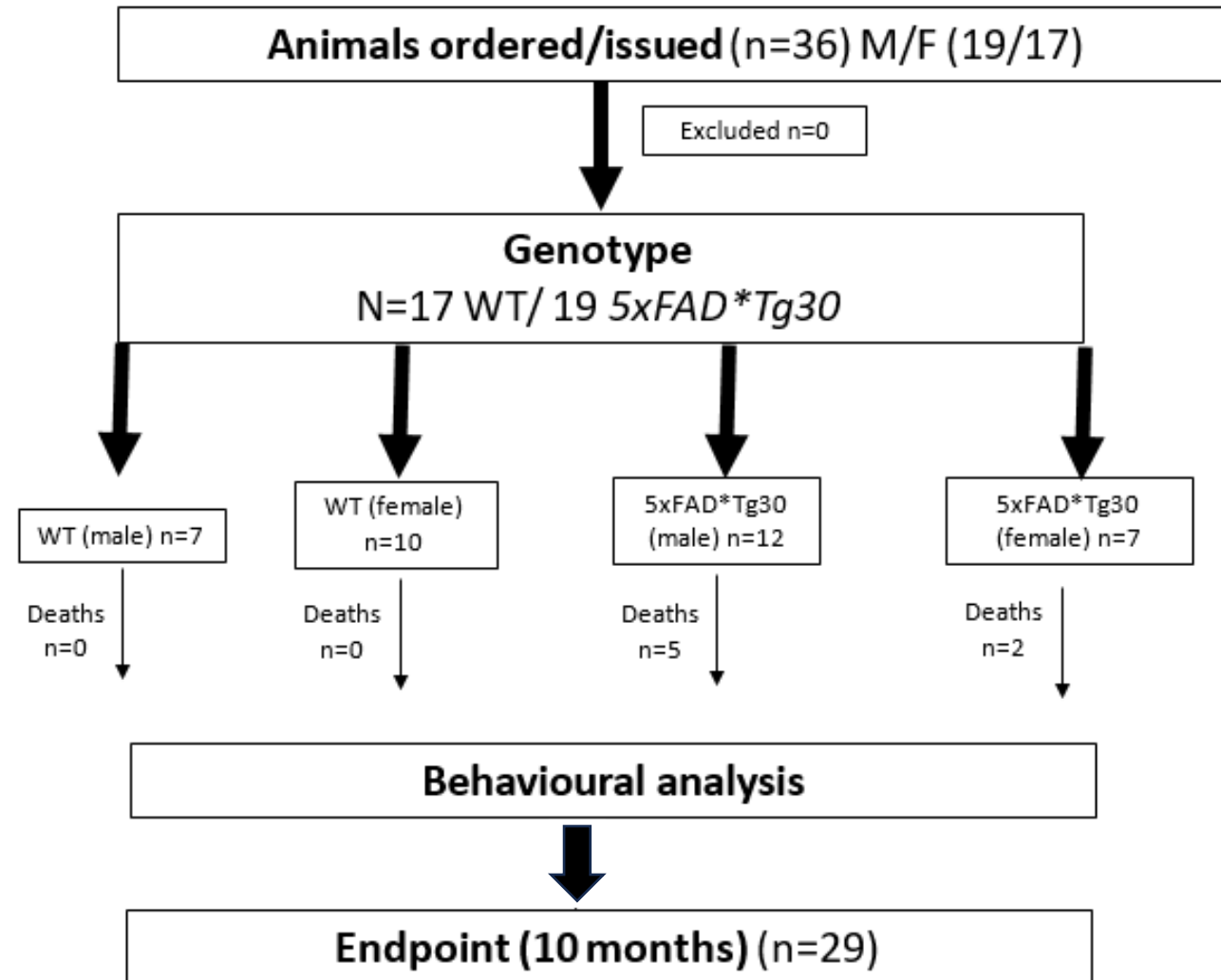
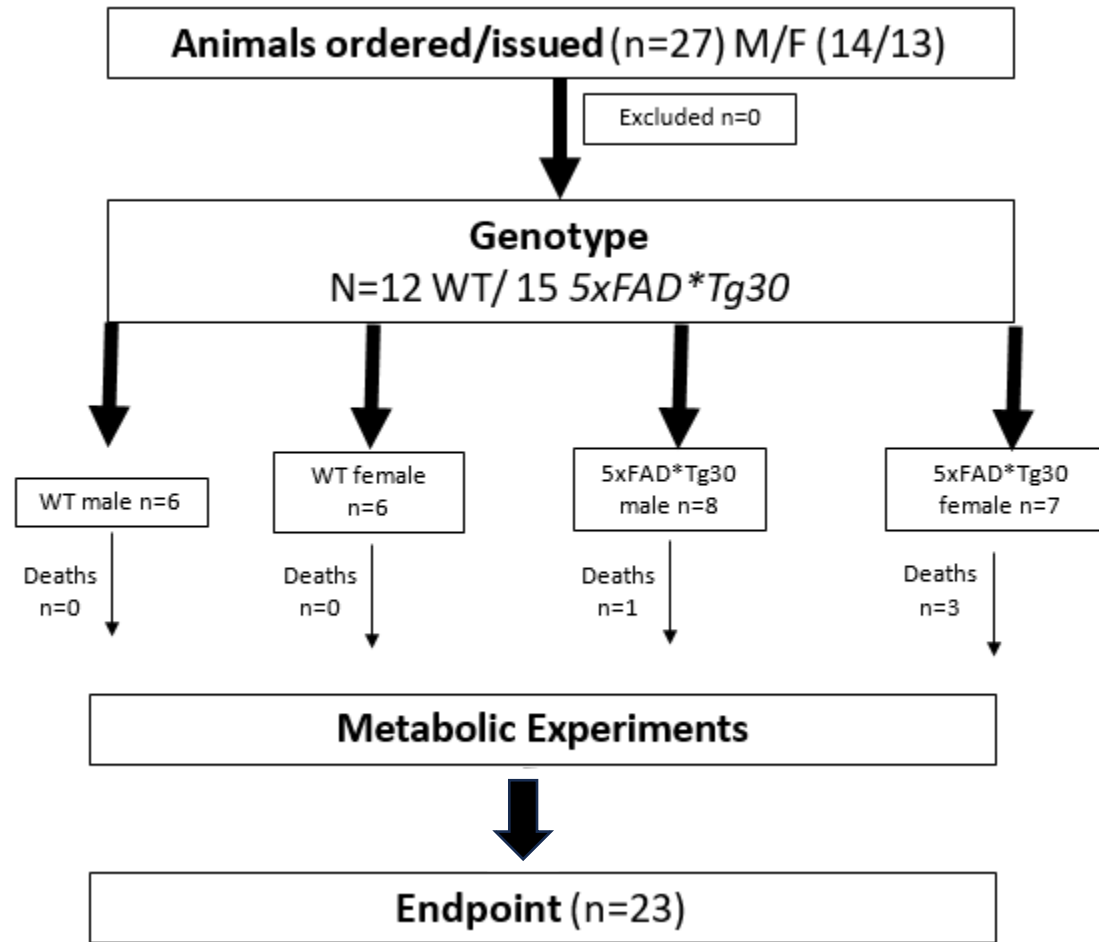


Figure S2: Animal flow chart of Cohort 2: metabolic cohort related to figure 3, 4 and 5.



Supplementary Table 1 - Plasma lipid class differences between WT and 5xFAD*Tg30 mice related to Figure 6.

Lipid class	Female Mice					Male Mice				
	Fold difference	Lower 95% CI	Higher 95% CI	pvalues	pvalues adjusted	Fold difference	Lower 95% CI	Higher 95% CI	pvalues	pvalues adjusted
Sph	0.91	0.77	1.07	2.60E-01	3.55E-01	0.93	0.80	1.09	4.16E-01	5.33E-01
S1P	0.83	0.73	0.95	1.61E-02	5.51E-02	0.88	0.73	1.07	2.25E-01	3.29E-01
dhCer	0.78	0.60	1.03	1.06E-01	1.89E-01	0.74	0.59	0.94	2.79E-02	6.01E-02
Cer(d)	0.82	0.62	1.09	2.01E-01	2.94E-01	0.69	0.56	0.86	5.76E-03	1.97E-02
Cer(m)	0.87	0.67	1.14	3.30E-01	4.10E-01	0.97	0.79	1.19	7.85E-01	8.94E-01
MHC	0.99	0.75	1.30	9.32E-01	9.55E-01	0.71	0.60	0.86	3.37E-03	1.73E-02
DHC	1.39	1.03	1.87	4.88E-02	1.34E-01	1.14	0.82	1.57	4.57E-01	5.68E-01
THC	0.73	0.53	1.01	8.35E-02	1.56E-01	0.64	0.44	0.92	3.14E-02	6.43E-02
GM3	1.00	0.77	1.29	9.99E-01	9.99E-01	0.95	0.74	1.22	6.91E-01	8.10E-01
GM1	0.78	0.16	3.73	7.61E-01	8.00E-01	0.55	0.10	2.90	4.91E-01	5.92E-01
Sulfatide	1.19	0.84	1.70	3.47E-01	4.18E-01	1.00	0.80	1.24	9.79E-01	9.80E-01
SM	0.89	0.76	1.04	1.77E-01	2.69E-01	0.75	0.64	0.88	4.66E-03	1.97E-02
PA	0.84	0.71	1.00	7.47E-02	1.53E-01	1.00	0.86	1.16	9.80E-01	9.80E-01
PC	0.82	0.73	0.92	4.21E-03	5.33E-02	0.75	0.66	0.85	8.86E-04	8.74E-03
PC(O)	0.80	0.69	0.93	1.04E-02	5.33E-02	0.77	0.65	0.92	1.31E-02	4.12E-02
PC(P)	0.80	0.69	0.92	9.86E-03	5.33E-02	0.67	0.56	0.80	9.62E-04	8.74E-03
LPC	0.85	0.75	0.97	3.10E-02	9.78E-02	0.84	0.73	0.96	2.72E-02	6.01E-02
LPC(O)	0.94	0.84	1.04	2.40E-01	3.39E-01	0.79	0.64	0.98	5.30E-02	9.88E-02
LPC(P)	0.69	0.53	0.89	1.34E-02	5.49E-02	0.59	0.47	0.75	8.06E-04	8.74E-03
PE	0.77	0.61	0.98	5.24E-02	1.34E-01	0.68	0.52	0.89	1.54E-02	4.50E-02
PE(O)	0.76	0.59	0.99	6.26E-02	1.35E-01	0.62	0.50	0.78	1.28E-03	8.74E-03
PE(P)	0.74	0.62	0.89	5.58E-03	5.33E-02	0.67	0.55	0.83	3.25E-03	1.73E-02
LPE	0.70	0.57	0.88	7.97E-03	5.33E-02	0.69	0.56	0.86	5.57E-03	1.97E-02
LPE(P)	0.84	0.71	0.99	6.09E-02	1.35E-01	0.87	0.67	1.14	3.47E-01	4.64E-01
PI	0.90	0.74	1.10	3.13E-01	4.00E-01	0.73	0.61	0.87	5.01E-03	1.97E-02
PIP1	1.10	0.73	1.66	6.49E-01	7.07E-01	0.70	0.34	1.44	3.51E-01	4.64E-01
LPI	0.96	0.79	1.16	6.56E-01	7.07E-01	0.81	0.70	0.94	1.78E-02	4.55E-02
PS	1.37	0.92	2.05	1.46E-01	2.49E-01	1.01	0.75	1.36	9.59E-01	9.80E-01
LPS	0.82	0.67	1.01	8.07E-02	1.56E-01	0.86	0.70	1.06	1.75E-01	2.67E-01
PG	0.67	0.51	0.88	1.34E-02	5.49E-02	0.79	0.60	1.05	1.35E-01	2.30E-01
LPG	0.74	0.44	1.27	3.02E-01	3.99E-01	0.78	0.56	1.09	1.71E-01	2.67E-01
CE	0.97	0.89	1.05	4.72E-01	5.52E-01	0.84	0.74	0.96	2.51E-02	6.01E-02
COH	0.84	0.71	0.98	4.96E-02	1.34E-01	0.74	0.64	0.85	1.16E-03	8.74E-03
DE	1.05	0.89	1.25	5.79E-01	6.59E-01	0.80	0.59	1.08	1.76E-01	2.67E-01

FFA	0.86	0.78	0.94	6.78E-03	5.33E-02	0.87	0.78	0.98	4.08E-02	7.97E-02
Acylcarnitine	1.24	0.93	1.65	1.60E-01	2.62E-01	1.05	0.67	1.65	8.25E-01	9.14E-01
DG	0.42	0.23	0.77	1.56E-02	5.51E-02	0.47	0.27	0.80	1.77E-02	4.55E-02
TG	0.57	0.41	0.79	5.05E-03	5.33E-02	0.72	0.52	1.00	7.05E-02	1.26E-01
TG(O)	0.91	0.83	0.99	5.80E-02	1.35E-01	0.96	0.90	1.03	2.53E-01	3.58E-01
Ubiquinone	0.86	0.71	1.05	1.70E-01	2.67E-01	0.98	0.83	1.17	8.63E-01	9.31E-01

Supplementary Table 2 - Brain lipid class differences between WT and 5xFAD*Tg30 mice related to Figure 6.

Lipid class	Female Mice					Male Mice				
	Fold difference	Lower 95% CI	Higher 95% CI	pvalues	pvalues adjusted	Fold difference	Lower 95% CI	Higher 95% CI	pvalues	pvalues adjusted
Sph	1.16	1.00	1.34	7.36E-02	3.28E-01	1.23	1.09	1.39	7.57E-03	1.51E-01
S1P	0.90	0.67	1.21	5.01E-01	6.42E-01	0.77	0.49	1.18	2.56E-01	4.56E-01
dhCer	1.04	0.94	1.14	4.93E-01	6.42E-01	0.99	0.86	1.13	8.73E-01	8.95E-01
Cer(d)	1.30	0.98	1.74	9.82E-02	3.28E-01	1.20	0.80	1.81	4.06E-01	5.60E-01
Cer(m)	0.61	0.35	1.06	1.04E-01	3.28E-01	0.84	0.35	2.02	7.10E-01	7.89E-01
MHC	0.74	0.42	1.31	3.22E-01	5.07E-01	1.21	0.69	2.13	5.18E-01	6.47E-01
DHC	1.24	0.97	1.59	1.14E-01	3.28E-01	1.16	0.91	1.48	2.62E-01	4.56E-01
THC	1.66	0.95	2.91	9.88E-02	3.28E-01	1.63	0.89	2.97	1.42E-01	3.64E-01
GM3	2.87	1.82	4.52	6.84E-04	2.80E-02	1.73	0.92	3.26	1.20E-01	3.64E-01
GM1	1.36	0.85	2.18	2.20E-01	4.29E-01	1.10	0.71	1.69	6.76E-01	7.73E-01
Sulfatide	0.87	0.53	1.42	5.85E-01	6.86E-01	1.54	0.96	2.47	1.03E-01	3.64E-01
SM	1.07	0.75	1.51	7.24E-01	7.77E-01	1.53	1.07	2.20	4.27E-02	2.44E-01
PA	0.76	0.51	1.12	1.93E-01	4.02E-01	1.10	0.80	1.50	5.80E-01	6.82E-01
PC	1.09	0.95	1.25	2.47E-01	4.40E-01	1.18	0.91	1.53	2.36E-01	4.50E-01
PC(O)	1.24	0.96	1.61	1.23E-01	3.28E-01	1.27	0.94	1.71	1.49E-01	3.64E-01
PC(P)	1.25	0.96	1.62	1.28E-01	3.28E-01	1.30	0.93	1.80	1.55E-01	3.64E-01
LPC	1.18	1.01	1.37	5.92E-02	3.04E-01	1.43	1.12	1.83	1.69E-02	1.69E-01
LPC(O)	1.30	1.12	1.51	4.55E-03	8.62E-02	1.45	1.11	1.89	2.22E-02	1.78E-01
LPC(P)	1.27	1.10	1.47	6.31E-03	8.62E-02	1.17	0.77	1.78	4.72E-01	6.29E-01
PE	1.22	0.92	1.61	1.96E-01	4.02E-01	1.33	0.80	2.20	2.97E-01	4.75E-01
PE(O)	1.11	0.79	1.54	5.61E-01	6.77E-01	1.45	0.87	2.42	1.82E-01	3.83E-01
PE(P)	1.06	0.77	1.47	7.21E-01	7.77E-01	1.43	0.82	2.50	2.34E-01	4.50E-01
LPE	1.21	1.04	1.40	2.66E-02	1.56E-01	1.64	1.17	2.29	1.58E-02	1.69E-01
LPE(P)	1.29	1.10	1.52	8.63E-03	8.85E-02	1.41	0.90	2.22	1.64E-01	3.65E-01
PI	1.25	0.88	1.76	2.36E-01	4.40E-01	1.55	1.09	2.20	3.44E-02	2.30E-01
PIP1	1.11	0.63	1.96	7.30E-01	7.77E-01	1.22	0.63	2.35	5.68E-01	6.82E-01
LPI	0.75	0.63	0.91	1.09E-02	8.94E-02	1.26	0.67	2.35	4.90E-01	6.32E-01
PS	1.10	0.96	1.26	1.94E-01	4.02E-01	1.03	0.77	1.37	8.71E-01	8.95E-01
LPS	1.27	1.06	1.52	2.20E-02	1.50E-01	1.50	1.02	2.20	6.61E-02	2.94E-01
PG	1.14	0.86	1.51	3.84E-01	5.43E-01	1.27	0.84	1.91	2.86E-01	4.75E-01
LPG	0.89	0.44	1.79	7.47E-01	7.77E-01	2.79	1.08	7.23	6.07E-02	2.94E-01
CE	0.95	0.71	1.28	7.58E-01	7.77E-01	0.96	0.66	1.39	8.27E-01	8.94E-01
COH	1.07	0.93	1.23	3.46E-01	5.25E-01	1.23	0.95	1.58	1.40E-01	3.64E-01
DE	0.82	0.57	1.18	3.07E-01	5.07E-01	0.84	0.58	1.21	3.69E-01	5.27E-01

FFA	0.90	0.69	1.18	4.60E-01	6.28E-01	0.75	0.54	1.04	1.14E-01	3.64E-01
Acylcarnitine	0.94	0.77	1.14	5.47E-01	6.77E-01	1.31	0.96	1.79	1.18E-01	3.64E-01
DG	1.00	0.61	1.62	9.86E-01	9.86E-01	1.82	1.41	2.34	9.70E-04	3.88E-02
TG	0.87	0.64	1.18	3.81E-01	5.43E-01	0.83	0.59	1.18	3.29E-01	5.06E-01
TG(O)	0.85	0.63	1.15	3.12E-01	5.07E-01	0.82	0.56	1.21	3.42E-01	5.07E-01
Ubiquinone	1.40	0.95	2.06	1.20E-01	3.28E-01	0.96	0.49	1.88	8.99E-01	8.99E-01