Supplementary Tables and Figure

Table S1 Ingredient and nutritional compositions of experimental diets*

Description	Nutritional Profile*	Standard AIN-93M	Defatted AIN-93M
Ingredients	Corn Starch	46.57	46.57
	Dextrin	15.50	15.50
	Casein-Vitamin Free	14.00	14.00
	Sucrose	10.00	10.00
	Powdered Cellulose	5.00	5.00
	Soybean Oil	4.00	0.00
	AIN 93M Mineral Mix	3.50	3.50
	AIN 93M Vitamin Mix	1.00	1.00
	Choline Bitartrate	0.25	0.25
	L-Cystine	0.18	0.18
	t-Butylhydroquinone	0.00	0.00
Nutrition	Protein	13.06	13.06
	Fat	4.10	0.00
	Fiber	5.00	5.00
	Carbohydrate	73.80	73.80
	Metabolizable Energy	3.83	3.83
Fat	Cholesterol	0.00	0.00
	Linoleic Acid	2.04	0.00
	Linolenic Acid	0.31	0.00
	Arachidonic Acid	0.00	0.00
	Omega-3 Fatty Acids	0.31	0.00
	Total Saturated Fatty Acids	0.60	0.00
	Total Monounsaturated Fatty Acids	0.88	0.00
	Polyunsaturated Fatty Acids	2.16	0.00

* Rats of control group were regularly administered with oral gavage at 0.8 mL/100 g of whole butterfat, and consumed water and defatted AIN-93M chows (*ad libitum*) per day. Rats of 30L and 30S groups were regularly administered with oral gavage at 0.8 mL/100 g of 30L and 30S fractions, respectively, and consumed water and defatted AIN-93M chows (*ad libitum*) per day.

Fig. S1 Experimental scheme.

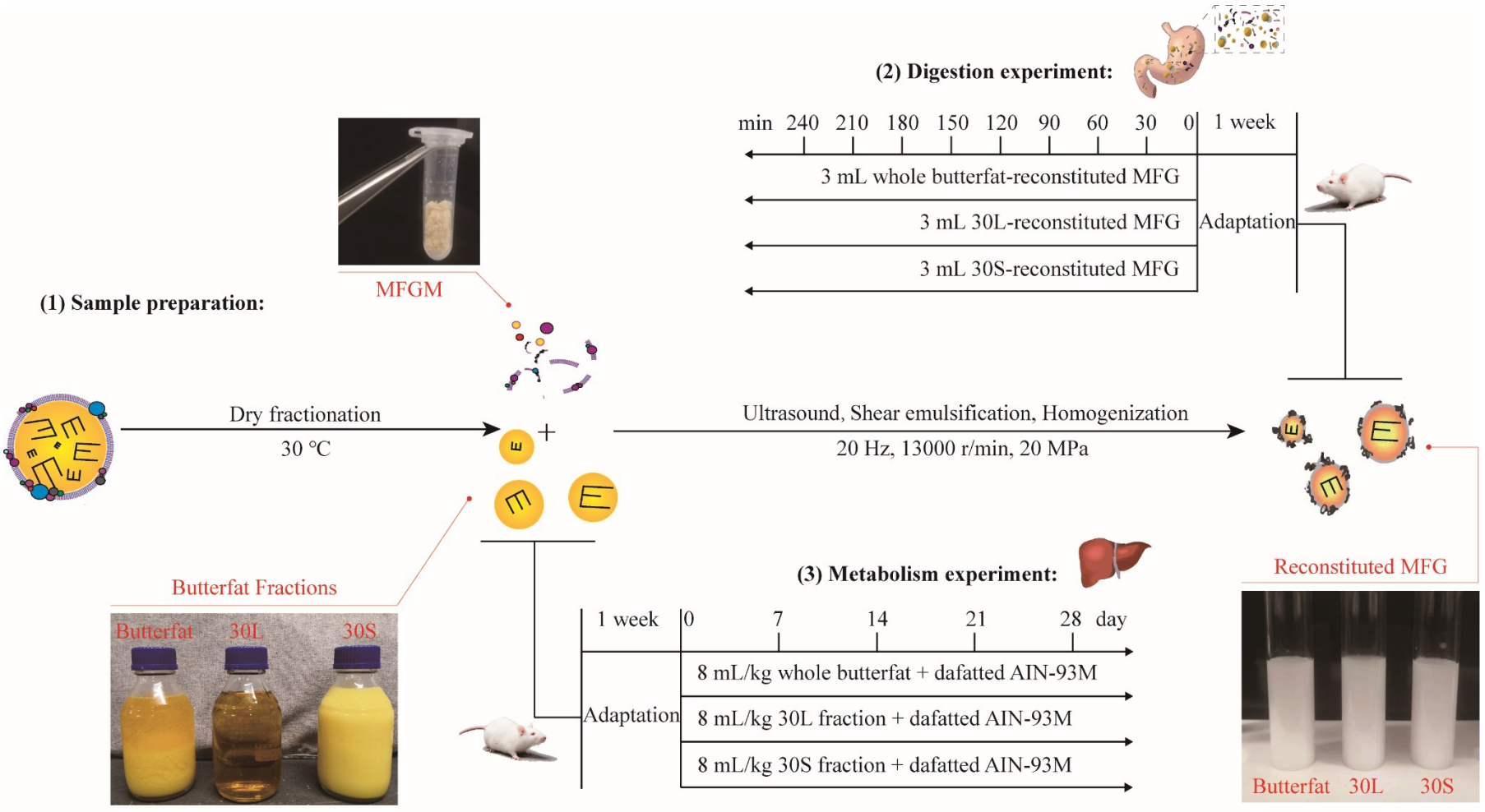

Table S2. FA composition of whole butterfat and its fractions*

FA	Butterfat	Fractions	
		30L	30S
C4:0	4.60 ± 0.69^{a}	3.13 ± 0.12^{ab}	1.85 ± 0.16^{b}
C6:0	1.32 ± 0.22^{a}	1.15 ± 0.05^{ab}	0.97 ± 0.05^{b}
C8:0	1.11 ± 0.08^{a}	1.08 ± 0.02^{ab}	0.91 ± 0.02^{c}
C10:0	2.97 ± 0.07^{ab}	3.05 ± 0.03^{a}	2.73 ± 0.11^{c}
C11:0	0.34 ± 0.02^{a}	0.34 ± 0.00^{a}	0.30 ± 0.01^{b}
C12:0	3.68 ± 0.02^{a}	3.80 ± 0.06^{a}	3.69 ± 0.13^{a}
C13:0	0.23 ± 0.00^{a}	0.24 ± 0.01^{a}	0.22 ± 0.01^{a}
C14:0	11.27 ± 0.06^{a}	11.54 ± 0.13^{a}	12.15 ± 0.24^{a}
C14:1	0.91 ± 0.00^{a}	0.96 ± 0.01^{a}	0.81 ± 0.03^{b}
C15:0	1.28 ± 0.00^{ab}	1.30 ± 0.01^{ab}	1.41 ± 0.02^{a}
C16:0	28.39 ± 0.35^{b}	28.85 ± 0.12^{b}	32.56 ± 0.21^{a}
C16:1 T	0.52 ± 0.00^{a}	ND	ND
C16:1	1.87 ± 0.12^{ab}	2.04 ± 0.01^{a}	1.71 ± 0.08^{ab}
C17:0	0.78 ± 0.01^{b}	0.81 ± 0.03^{b}	0.90 ± 0.01^{a}
C17:1 T	0.06 ± 0.00^{a}	0.07 ± 0.00^{a}	0.08 ± 0.00^{a}
C17:1	0.29 ± 0.05^{a}	ND	ND
C18:0	11.14 ± 0.19^{b}	11.22 ± 0.07^{b}	13.88 ± 0.14^{a}
C18:1 trans-9	0.41 ± 0.04^{a}	ND	ND
C18:1 trans-11	2.89 ± 0.08^{a}	3.47 ± 0.00^{a}	3.36 ± 0.02^{a}
C18:1 cis-6	0.64 ± 0.54^{a}	ND	ND
C18:1 cis-9	21.55 ± 0.88^{b}	23.50 ± 0.03^{a}	19.55 ± 0.80^{c}
C18:1 cis11	0.59 ± 0.01^{b}	0.63 ± 0.02^{a}	0.55 ± 0.00^{c}
C18:2	1.53 ± 0.02^{a}	1.64 ± 0.02^{a}	1.35 ± 0.02^{b}
C20:0	0.12 ± 0.00^{b}	0.11 ± 0.01^{b}	0.16 ± 0.00^{a}
C20:1	0.06 ± 0.01^{a}	0.05 ± 0.00^{a}	ND
α-C18:3, cis-9,12,15	0.83 ± 0.01^{a}	0.89 ± 0.01^{a}	0.73 ± 0.01^{b}
C20:2	0.03 ± 0.02^{a}	ND	ND
C22:0	0.08 ± 0.03^{a}	ND	ND
C20:3 n-6	0.06 ± 0.01^{a}	0.07 ± 0.00^{a}	ND
C20:4 n-6	0.11 ± 0.01^{a}	0.10 ± 0.01^{a}	0.08 ± 0.01^{a}
C22:2	0.08 ± 0.00^{a}	0.08 ± 0.00^{a}	0.09 ± 0.01^{a}
C24:0	0.04 ± 0.01^{a}	ND	ND
C20:5	0.14 ± 0.05^{a}	0.08 ± 0.00^{a}	ND
C22:5 n-6	0.11 ± 0.01^{a}	ND	ND
SFA	67.34 ± 0.49^{a}	66.61 ± 0.09^{a}	71.73 ± 0.81^{a}
MUFA	29.79 ± 0.53^{a}	30.68 ± 0.02^{a}	26.06 ± 0.80^{a}
PUFA	2.87 ± 0.05^{a}	2.71 ± 0.09^{b}	2.21 ± 0.02^{c}
SC-FA	5.93 ± 0.91^{a}	4.28 ± 0.16^{ab}	2.82 ± 0.18^{b}
MC-FA	8.10 ± 0.19^{a}	8.27 ± 0.07^{a}	7.63 ± 0.27^{b}
LC-FA	85.98 ± 1.11^{b}	87.44 ± 0.09^{b}	89.55 ± 0.36^{a}
LC-SFA	53.32 ± 0.61^{b}	54.06 ± 0.18^{b}	61.28 ± 0.46^{a}

* The values were expressed as mass percent of individual FA, g/100 g (mean ± standard deviation). SFA: Saturated fatty acids; MUFA: Monounsaturated fatty acids; PUFA: Polyunsaturated fatty acids; SC-FA: Short-chain FA (C4 - C6); MC-FA: Medium-chain FA (C8 - C12); LC-FA: Long-chain FA (> C14). Different letters in the same row represent significant differences ($P < 0.05$). ND indicates not detected.

Table S3 TAG composition of whole milk fat and its fractions *

TAG	Control	Fractions	
		30L	30S
C12:0C8:0C4:0	0.21 ± 0.05[a]	0.14 ± 0.03[a]	0.87 ± 0.61[a]
C12:0C6:0C6:0	0.22 ± 0.03[a]	0.1 ± 0.04[a]	0.74 ± 0.53[a]
C10:0C8:0C6:0	0.14 ± 0.07[a]	0.14 ± 0.06[a]	0.65 ± 0.38[a]
C14:0C6:0C4:0	0.08 ± 0.03[ab]	0.03 ± 0.01[b]	0.14 ± 0.05[a]
C14:1C6:0C6:0	0.02 ± 0.01[b]	0.01 ± 0[c]	0.11 ± 0.01[a]
C14:1C8:0C4:0	0.03 ± 0[b]	0.01 ± 0[b]	0.31 ± 0.02[a]
C12:0C10:0C4:0	0.46 ± 0.1[b]	0.17 ± 0.05[b]	1.55 ± 0.23[a]
C14:0C8:0C4:0	0.15 ± 0.05[b]	0.13 ± 0.02[b]	1.49 ± 0.18[a]
C14:0C6:0C6:0	0.06 ± 0[b]	0.05 ± 0.01[b]	0.39 ± 0.01[a]
C14:1C10:0C4:0	0.02 ± 0[cb]	0.01 ± 0[b]	0.15 ± 0.03[a]
C16:1C8:0C4:0	0.01 ± 0[b]	0.02 ± 0[b]	0.25 ± 0.08[a]
C14:1C8:0C6:0	0.03 ± 0[a]	0.02 ± 0.01[a]	0.04 ± 0.01[a]
C14:0C10:0C4:0	0.1 ± 0.05[b]	0.15 ± 0.02[b]	1.17 ± 0.44[a]
C16:0C8:0C4:0	0.07 ± 0.04[b]	0.09 ± 0.02[b]	0.69 ± 0.51[a]
C14:0C8:0C6:0	0.12 ± 0.08[b]	0.18 ± 0.04[b]	2.05 ± 1.25[a]
C16:0C6:0C6:0	0.02 ± 0[b]	0.04 ± 0[b]	0.69 ± 0.24[a]
C18:1C8:0C4:0	0.06 ± 0.01[b]	0.07 ± 0.02[b]	0.41 ± 0.21[a]
C18:1C6:0C6:0	0.03 ± 0.01[a]	0.02 ± 0.01[a]	0.12 ± 0.06[a]
C15:0C10:0C4:0	0.02 ± 0.02[a]	0.02 ± 0.01[a]	0.11 ± 0.03[a]
C18:2C10:0C4:0	0.02 ± 0.01[b]	0.01 ± 0[b]	0.2 ± 0.08[a]
C14:0C12:0C4:0	0.28 ± 0.07[a]	0.46 ± 0.01[a]	0.1 ± 0.01[a]
C12:0C8:0C10:0	0.06 ± 0[b]	0.06 ± 0.02[b]	0.29 ± 0.12[a]
C16:0C10:0C4:0	0.27 ± 0.21[a]	0.44 ± 0.57[a]	0.04 ± 0[a]
C16:0C8:0C6:0	0.09 ± 0.01[a]	0.12 ± 0.03[a]	0.05 ± 0.02[a]
C18:1C10:0C4:0	0.12 ± 0.11[b]	0.26 ± 0.01[a]	0.07 ± 0[b]
C10:0C17:0C4:0	0.03 ± 0.01[a]	0.01 ± 0[a]	0.06 ± 0[a]
C15:0C12:0C4:0	0.02 ± 0[b]	0.02 ± 0.01[b]	0.1 ± 0.02[a]
C18:2C10:0C6:0	0.02 ± 0.01[a]	0.02 ± 0.01[a]	0.02 ± 0[a]
C18:2C12:0C4:0	0.03 ± 0.01[a]	0.05 ± 0.01[a]	0.05 ± 0[a]
C16:0C10:0C6:0	0.13 ± 0.1[a]	0.32 ± 0.07[a]	0.18 ± 0.03[a]
C14:0C14:0C4:0	0.91 ± 0.04[a]	1.09 ± 0.07[a]	0.79 ± 0.31[a]
C16:0C12:0C4:0	0.64 ± 0.25[a]	0.38 ± 0.06[a]	1.49 ± 0.25[a]
C10:0C18:0C4:0	0.21 ± 0.01[b]	0.24 ± 0.01[b]	1.1 ± 0.49[a]
C16:1C14:0C4:0	0.13 ± 0.01[a]	0.14 ± 0.01[a]	0.06 ± 0.02[a]
C18:1C10:0C6:0	0.11 ± 0.04[ca]	0.1 ± 0.02[a]	0.03 ± 0.01[a]
C16:0C14:1C4:0	0.18 ± 0.14[b]	0.45 ± 0.06[a]	0.06 ± 0.01[b]
C18:1C12:0C4:0	0.25 ± 0.15[b]	0.53 ± 0.12[a]	0.02 ± 0.01[b]
C15:0C14:0C4:0	0.02 ± 0.01[a]	0.05 ± 0.02[a]	0.05 ± 0.01[a]
C18:2C14:0C4:0	0.04 ± 0.03[b]	0.25 ± 0[a]	0.01 ± 0[b]
C18:1C14:1C4:0	0.07 ± 0.01[a]	0.06 ± 0[a]	0.03 ± 0.02[a]
C18:2C12:0C6:0	0.01 ± 0.01[b]	0.2 ± 0.01[a]	0.01 ± 0[b]
C16:1C14:1C6:0	0.14 ± 0.01[a]	0.1 ± 0.02[a]	0.02 ± 0.01[a]
C16:1C15:0C4:0	0.03 ± 0[a]	0.05 ± 0.03[a]	0.14 ± 0.07[a]
C18:1C13:0C4:0	0.06 ± 0[a]	0.1 ± 0.04[a]	0.24 ± 0.04[a]
C16:1C13:0C6:0	0.02 ± 0.01[a]	0.01 ± 0[a]	0.07 ± 0.05[a]
C12:0C12:0C10:0	0.04 ± 0.03[b]	0.35 ± 0.02[a]	0.07 ± 0.01[b]
C10:0C18:0C6:0	0.01 ± 0[a]	0.46 ± 0.06[a]	0.13 ± 0.07[a]

C14:0C8:0C12:0	0.05 ± 0.02^{b}	2.43 ± 0.13^{a}	0.08 ± 0.02^{b}
C18:0C12:0C4:0	0.05 ± 0.02^{a}	0.11 ± 0.02^{a}	0.18 ± 0.09^{a}
C16:0C14:0C4:0	0.09 ± 0.02^{b}	2.67 ± 0.03^{a}	0.26 ± 0.03^{b}
C18:1C8:0C10:0	1.31 ± 0.51^{b}	2.42 ± 0.12^{a}	0.03 ± 0^{c}
C18:1C14:0C4:0	1.08 ± 0.87^{b}	3.13 ± 0.15^{a}	0.1 ± 0.02^{b}
C16:1C16:0C4:0	0.58 ± 0.18^{b}	1.14 ± 0.06^{a}	0.12 ± 0.01^{b}
C18:1C12:0C6:0	0.18 ± 0.09^{a}	0.38 ± 0.05^{a}	0.04 ± 0.03^{a}
C16:0C15:0C4:0	0.15 ± 0.05^{a}	0.35 ± 0.03^{a}	0.55 ± 0.14^{a}
C18:1C16:1C4:0	0.15 ± 0.03^{b}	0.37 ± 0.07^{b}	5.82 ± 0.71^{a}
C18:2C16:0C4:0	0.71 ± 0.1^{a}	1.08 ± 0.13^{a}	1.02 ± 0.3^{a}
C15:0C18:1C4:0	0.09 ± 0.02^{a}	0.22 ± 0.09^{a}	0.1 ± 0.05^{a}
C18:2C18:1C4:0	0.07 ± 0.06^{a}	0.21 ± 0.02^{a}	0.15 ± 0.05^{a}
C18:2C16:1C6:0	0.01 ± 0^{a}	0.06 ± 0.02^{a}	0.02 ± 0.01^{a}
C16:0C14:0C6:0	0.06 ± 0.05^{a}	1.12 ± 0.15^{a}	0.23 ± 0.08^{a}
C16:0C16:0C4:0	0.03 ± 0.01^{b}	1.38 ± 0.07^{a}	1 ± 0.57^{a}
C18:0C14:0C4:0	0.03 ± 0.02^{c}	2.99 ± 0.05^{b}	4.2 ± 0.97^{a}
C18:1C10:0C10:0	0.15 ± 0.03^{b}	0.22 ± 0.08^{a}	0.08 ± 0.03^{b}
C18:1C16:0C4:0	0.06 ± 0.01^{a}	0.76 ± 1.03^{a}	0.41 ± 0.23^{a}
C18:1C14:0C6:0	0.3 ± 0.28^{b}	1.03 ± 0.11^{a}	0.09 ± 0.01^{b}
C18:1C12:0C8:0	0.1 ± 0.05^{b}	0.2 ± 0.04^{a}	0.06 ± 0^{b}
C18:1C18:1C4:0	$0.39 \pm 0d^{a}$	0.87 ± 0.04^{a}	0.21 ± 0.01^{a}
C18:2C16:0C6:0	0.09 ± 0.01^{a}	0.2 ± 0.05^{a}	0.04 ± 0.02^{a}
C17:0C18:1C4:0	0.06 ± 0.05^{b}	0.2 ± 0.03^{a}	0.07 ± 0.02^{b}
C15:0C18:1C6:0	0.05 ± 0.03^{a}	0.03 ± 0.01^{a}	0.02 ± 0.01^{a}
C16:0C12:0C10:0	0.03 ± 0.01^{a}	0.49 ± 0.14^{a}	0.11 ± 0.05^{a}
C16:0C16:0C6:0	0.06 ± 0.01^{b}	1.04 ± 0.08^{a}	0.52 ± 0.14^{b}
C16:0C18:0C4:0	0.02 ± 0^{b}	0.46 ± 0.13^{b}	7.11 ± 1.89^{a}
C16:0C14:0C8:0	0.07 ± 0.02^{c}	1.14 ± 0.08^{a}	0.55 ± 0.13^{b}
C18:1C12:0C10:0	0.27 ± 0.01^{a}	0.32 ± 0.1^{a}	0.05 ± 0.01^{a}
C18:1C16:0C6:0	0.14 ± 0.12^{a}	0.81 ± 0.15^{a}	0.08 ± 0.03^{a}
C18:0C18:1C4:0	0.07 ± 0.05^{b}	1.72 ± 0.15^{a}	1.22 ± 0.11^{a}
C14:0C18:1C8:0	0.24 ± 0.13^{ab}	0.54 ± 0.05^{a}	0.08 ± 0.02^{b}
C18:1C18:1C6:0	0.18 ± 0.05^{a}	0.12 ± 0.08^{b}	0.16 ± 0.05^{ab}
C16:1C18:1C8:0	0.09 ± 0.02^{a}	0.05 ± 0^{b}	0.04 ± 0.03^{b}
C14:1C18:1C10:0	0.13 ± 0.01^{a}	0.08 ± 0.02^{b}	0.02 ± 0.01^{c}
C12:0C18:2C12:0	0.05 ± 0.01^{a}	0.05 ± 0.01^{ab}	0.02 ± 0^{b}
C14:0C18:2C10:0	0.13 ± 0^{b}	0.08 ± 0.01^{c}	0.31 ± 0.02^{a}
C18:1C17:0C6:0	0.06 ± 0.01^{a}	0.12 ± 0.03^{a}	0.11 ± 0^{a}
C18:1C15:0C8:0	0.11 ± 0.01^{a}	0.03 ± 0^{b}	0.06 ± 0.01^{b}
C16:0C14:0C10:0	0.03 ± 0.01^{b}	1.19 ± 0.05^{a}	0.35 ± 0.04^{b}
C18:0C16:0C6:0	0.08 ± 0.02^{b}	1.07 ± 0.12^{a}	1.39 ± 0.22^{a}
C16:0C12:0C12:0	0.02 ± 0^{b}	0.53 ± 0.11^{a}	0.36 ± 0.02^{ab}
C16:0C16:0C8:0	0.03 ± 0^{b}	1.37 ± 0.07^{a}	0.37 ± 0.05^{b}
C14:0C14:1C14:0	0.02 ± 0^{c}	0.89 ± 0.09^{a}	0.32 ± 0^{b}
C18:1C14:0C10:0	0.01 ± 0^{c}	0.86 ± 0.09^{a}	0.22 ± 0.03^{b}
C16:0C8:0C18:1	0.02 ± 0.01^{c}	0.96 ± 0.09^{a}	0.27 ± 0^{b}
C12:0C18:1C12:0	0.07 ± 0.02^{ab}	0.24 ± 0.02^{a}	0.04 ± 0^{c}
C15:0C10:0C16:0	0.08 ± 0.02^{a}	0.14 ± 0.02^{a}	0.08 ± 0.02^{a}
C14:0C10:0C17:0	0.06 ± 0.02^{ba}	0.1 ± 0.01^{a}	0.11 ± 0.02^{a}
C15:0C8:0C18:0	0.02 ± 0.02^{a}	0.03 ± 0.01^{a}	0.05 ± 0^{a}

C18:1C8:0C18:1	0.02 ± 0.01^{c}	0.82 ± 0.03^{a}	0.19 ± 0.05^{b}
C10:0C15:0C18:1	0.02 ± 0^{c}	0.12 ± 0.02^{a}	0.07 ± 0^{b}
C8:0C17:0C18:1	0.02 ± 0^{b}	0.02 ± 0.01^{b}	0.04 ± 0.02^{a}
C16:0C12:0C18:3	0.02 ± 0^{c}	0.02 ± 0.01^{b}	0.04 ± 0.01^{a}
C16:0C12:0C14:0	0.06 ± 0.01^{c}	1.8 ± 0.08^{a}	0.58 ± 0.04^{b}
C16:0C10:0C16:0	0.05 ± 0.01^{b}	2.42 ± 0.08^{a}	0.47 ± 0.07^{b}
C16:0C10:0C18:1	0.02 ± 0^{c}	1.77 ± 0.1^{a}	0.39 ± 0.01^{b}
C14:1C14:0C18:1	0.85 ± 0.01^{a}	0.78 ± 0.09^{ab}	0.18 ± 0.06^{b}
C14:0C14:0C18:2	0.11 ± 0^{a}	0.17 ± 0.01^{a}	0.23 ± 0.07^{a}
C16:0C12:0C18:2	0.05 ± 0.01^{b}	0.15 ± 0.03^{a}	0.03 ± 0.01^{b}
C18:0C10:0C18:2	0.25 ± 0^{a}	0.25 ± 0.04^{a}	0.13 ± 0.02^{a}
C17:0C10:0C18:1	0.04 ± 0^{b}	0.04 ± 0.01^{ab}	0.03 ± 0^{a}
C15:0C12:0C18:1	0.01 ± 0^{b}	0.1 ± 0^{a}	0.05 ± 0.02^{a}
C16:0C14:0C18:3	0.03 ± 0^{b}	0.02 ± 0^{b}	0.04 ± 0.01^{a}
C14:0C14:0C16:0	0.01 ± 0.01^{c}	2.2 ± 0.02^{a}	1.13 ± 0.23^{b}
C18:0C10:0C16:0	0.13 ± 0.05^{c}	1.19 ± 0.07^{b}	4.15 ± 0.09^{a}
C16:0C12:0C18:1	0.02 ± 0^{b}	1.48 ± 0.08^{a}	0.13 ± 0^{b}
C14:0C16:1C16:0	0.02 ± 0^{b}	1.77 ± 0.08^{a}	0.05 ± 0.01^{b}
C18:0C10:0C18:1	0.08 ± 0.02^{c}	0.5 ± 0.12^{b}	1.4 ± 0.07^{a}
C16:0C14:0C18:2	0.02 ± 0.01^{c}	0.18 ± 0.02^{b}	0.3 ± 0.03^{a}
C16:0C14:1C18:1	0.02 ± 0^{b}	0.32 ± 0.06^{a}	0.19 ± 0.05^{a}
C15:0C14:0C18:1	0.01 ± 0^{c}	0.22 ± 0.04^{a}	0.19 ± 0.02^{b}
C18:1C14:0C18:2	0.01 ± 0.01^{b}	0.39 ± 0.02^{a}	0.08 ± 0.01^{c}
C16:0C16:1C18:2	0.03 ± 0^{a}	0.06 ± 0.01^{a}	0.07 ± 0.05^{a}
C16:0C14:0C16:0	0.03 ± 0.02^{b}	1.74 ± 0.1^{a}	1.98 ± 0.09^{a}
C18:0C12:0C16:0	0.15 ± 0.05^{c}	1.06 ± 0.08^{b}	5.12 ± 0.27^{a}
C16:0C18:2C18:2	0.03 ± 0^{c}	0.18 ± 0.01^{a}	0.08 ± 0.03^{b}
C16:0C14:0C18:1	0.01 ± 0^{c}	2.15 ± 0.1^{a}	0.43 ± 0.03^{b}
C18:0C12:0C18:1	0.05 ± 0^{c}	0.81 ± 0.06^{a}	0.35 ± 0.02^{b}
C16:0C14:1C18:0	0.01 ± 0^{c}	0.79 ± 0.1^{a}	0.27 ± 0.05^{b}
C18:1C14:0C18:1	0.02 ± 0.01^{c}	1.16 ± 0.1^{a}	0.2 ± 0.04^{b}
C16:0C16:1C18:1	0.01 ± 0.01^{c}	0.43 ± 0.07^{a}	0.18 ± 0.1^{b}
C16:0C15:0C18:1	0.01 ± 0^{b}	0.39 ± 0.03^{a}	0.36 ± 0.09^{a}
C18:1C16:0C18:2	1.44 ± 0.03^{a}	0.77 ± 0.06^{b}	0.38 ± 0.08^{b}
C18:0C14:0C16:0	2.78 ± 0.06^{a}	0.89 ± 0.02^{b}	3.83 ± 0.35^{a}
C16:0C16:0C18:1	28.27 ± 0.44^{a}	11.44 ± 0.88^{b}	0.99 ± 0.06^{c}
C14:0C18:0C18:1	$5.59 \pm 0.08a^{b}$	2.67 ± 0.05^{b}	4.38 ± 0.53^{a}
C16:0C18:1C18:1	8.93 ± 0.16^{a}	4.05 ± 0.16^{b}	0.39 ± 0.02^{c}
C16:1C18:0C18:1	20.41 ± 0.34^{a}	7.32 ± 0.19^{b}	0.77 ± 0.09^{b}
C16:0C17:0C18:1	0.33 ± 0.05^{a}	0.21 ± 0.03^{b}	0.1 ± 0.04^{b}
C18:1C18:1C18:1	2.19 ± 0.02^{a}	1.15 ± 0.12^{b}	0.88 ± 0.23^{c}
C18:0C18:2C18:1	0.19 ± 0.03^{b}	0.09 ± 0.05^{b}	0.91 ± 0.34^{a}
C16:0C18:0C16:0	3.16 ± 0.01^{b}	0.06 ± 0.03^{c}	9.2 ± 0.57^{a}
C18:0C18:0C14:0	0.37 ± 0.02^{b}	0.01 ± 0^{c}	1.86 ± 0.08^{a}
C18:0C16:0C18:1	7.69 ± 0.21^{a}	0.07 ± 0^{b}	6.21 ± 0.57^{a}
C18:0C16:0C18:0	0.73 ± 0.54^{a}	0.02 ± 0.01^{b}	0.92 ± 0.09^{a}
C18:1C18:0C18:1	1.63 ± 0.01^{b}	0.02 ± 0^{c}	2.91 ± 0.07^{a}
C18:0C18:1C18:0	0.5 ± 0^{a}	0.01 ± 0.01^{b}	0.38 ± 0.04^{a}
C18:0C18:0C18:0	0.06 ± 0.03^{b}	0.02 ± 0.02^{b}	0.4 ± 0.09^{a}
MCFA, MCFA, SCFA	0.80 ± 0.03^{b}	0.45 ± 0.10^{b}	3.07 ± 0.76^{a}

MCFA, SCFA, SCFA	0.22 ± 0.03[a]	0.10 ± 0.04[a]	0.74 ± 0.53[a]
LCFA, SCFA, SCFA	0.17 ± 0.03[b]	0.08 ± 0.01[c]	0.65 ± 0.07[a]
LCFA, MCFA, SCFA	2.86 ± 0.58[a]	4.14 ± 0.77[a]	10.08 ± 1.80[a]
LCFA, LCFA, SCFA	6.46 ± 2.03[b]	25.88 ± 1.12[a]	26.64 ± 1.58[a]
MCFA, LCFA, SCFA	0.25 ± 0.02[b]	0.71 ± 0.05[ab]	1.29 ± 0.56[a]
MCFA, MCFA, MCFA	0.10 ± 0.04[b]	2.79 ± 0.12[a]	0.16 ± 0.04[b]
LCFA, MCFA, MCFA	1.68 ± 0.53[b]	3.82 ± 0.25[a]	0.83 ± 0.20[c]
LCFA, LCFA, MCFA	0.84 ± 0.16[c]	5.34 ± 0.16[a]	2.00 ± 0.16[b]
MCFA, LCFA, MCFA	0.11 ± 0.03[b]	0.29 ± 0.02[a]	0.06 ± 0.00[b]
LCFA, MCFA, LCFA	1.03 ± 0.11[b]	13.64 ± 0.25[a]	13.58 ± 0.22[a]
MCFA, LCFA, LCFA	0.01 ± 0.00[a]	0.14 ± 0.03[a]	0.12 ± 0.01[a]
LCFA, LCFA, LCFA	85.48 ± 1.99[a]	42.62 ± 0.87[b]	40.79 ± 0.36[b]
STAG	12.85 ± 1.22[c]	35.28 ± 0.48[b]	62.17 ± 1.62[a]
MUTAG	48.63 ± 1.62[a]	42.53 ± 0.80[b]	21.47 ± 0.21[c]
PUTAG	38.52 ± 0.40[a]	22.18 ± 0.33[b]	16.36 ± 1.41[c]
MLC-TAG	3.67 ± 0.55[c]	23.22 ± 0.22[a]	16.59 ± 0.17[b]
LC-TAG	85.48 ± 1.99[a]	42.62 ± 0.87[b]	40.79 ± 0.36[b]
LC-STAG	7.14 ± 0.66[b]	4.93 ± 0.17[c]	19.32 ± 0.87[a]

[*] The values present the mole percentage (mol%) of each TAG species relative to the total TAG (mean ± standard deviation); different letters in the same row represent significant differences ($P < 0.05$); ND means Not detected. STAG: Saturated triacylglycerols, MUTAG: Monounsaturated triacylglycerols, PUTAG: Polyunsaturated triacylglycerols, MLC-TAG: Medium- and long-chain triacylglycerols, LC-TAG: long-chain triacylglycerols, LC-STAG: long-chain saturated triacylglycerols.

Table S4 The melting parameters of butterfat and its fractions [*]

Fractions	Temperature T_{peak} (°C)			T_{endset} (°C)	Enthalpy ΔH_f (J/g)			Total melting ΔH (J/g)
	1st peak	2nd peak	3rd peak		1st peak	2nd peak	3rd peak	
Butterfat	14.24 ± 0.03^{a}	18.34 ± 0.13^{a}	31.01 ± 0.09^{b}	35.23 ± 0.41^{b}	12.01 ± 0.30^{a}	15.46 ± 0.48^{b}	26.14 ± 0.59^{b}	53.61 ± 1.36^{b}
30L	11.25 ± 0.45^{b}	15.15 ± 0.16^{b}	28.16 ± 0.62^{c}	32.99 ± 0.33^{c}	5.52 ± 0.06^{b}	7.44 ± 0.30^{c}	13.82 ± 0.45^{c}	26.79 ± 0.80^{c}
30S	——	13.31 ± 0.12^{c}	38.68 ± 0.47^{a}	42.07 ± 0.14^{a}	——	18.31 ± 0.25^{a}	53.23 ± 1.79^{a}	71.54 ± 2.05^{a}

[*] ΔH_f: Enthalpy of endothermic event; T_{peak}: Peak melting temperature; T_{endset}: Final melting temperature. Results are represented as the mean ± standard deviation (n=3), different letters in the same column represent significant differences ($P < 0.05$).