

Supplementary Table 1. Anthropometric parameters and clinical characteristics of Caucasian participants (n=240).

	Lean N=30	Overweight N=22	Obesity N=188	<i>P</i> -value
Sex, female/male (n)	18/12	12/10	134/54	0.156
Age (years)	61.53±20.10	65.08±14.34	47.93±11.32 ^{*, #}	<0.001
BMI (kg/m ²)	22.10±1.95	27.35±1.50 [*]	49.84±9.30 ^{*, #}	<0.001
FPG (mmol/l) [¶]	5.31(4.77,5.90)	5.29(4.92,6.28)	5.72(5.10,7.53) [*]	0.002
Haemoglobin A1c (%) [¶]	5.10(4.90,5.40)	5.50(5.20,5.85)	6.05(5.40,6.80)	<0.001
Diabetes n (%)	2 (6.7)	3 (13.6)	98 (52.1) ^{*, #}	<0.001
Triglycerides (mmol/l) [¶]	0.94(0.83,1.07)	1.01(0.81,1.41)	1.67(1.15,2.34) ^{*, #}	<0.001
TC (mmol/l)	4.73±0.69	4.90±1.29	5.02±1.08	0.703
ALT (U/L) [¶]	22.80(13.20,31.80)	23.4(20.4,33.00)	33.00(23.40,45.60) ^{*, #}	<0.001
AST (U/L) [¶]	25.20(19.80,27.60)	24.90(19.80,33.60)	28.80(21.00,37.20)	0.050
Creatinine (μmol/l)	67.00(58.00,73.00)	68.00(61.00,79.50)	70.72(61.88,83.00)	0.145

Data indicate means ± SD or medians (interquartile range). ^{*}, *P* < 0.05 compared to lean; [#], *P* < 0.05 for difference between the obese versus overweight groups. Abbreviations: BMI, body mass index; FPG, fasting plasma glucose; AST, aspartate transaminase; ALT, alanine aminotransferase; TC, total cholesterol;

[¶]Log transformed before analysis.

Supplementary Table 2. Anthropometric parameters and clinical characteristics of Chinese Han participants (n=186).

	Lean N=32	Overweight N=115	Obesity N=39	P-value
Sex, female/male (n)	26/6	58/57	27/12	0.003
Age (years)	50.41±5.95	51.25±6.83	52.64±7.85	0.376
BMI (kg/m ²)	21.50±1.85	25.82±1.12*	30.51±2.12*, #	<0.001
FPG (mmol/l) [¶]	5.20(4.80,5.40)	5.70(5.30,6.65) *	5.90(5.30,6.35) *	<0.001
Haemoglobin A1c (%) [¶]	5.45(5.30,5.70)	5.90(5.60,6.35) *	5.90(5.70,6.15) *	<0.001
Triglycerides (mmol/l) [¶]	0.83(0.60,1.22)	1.40(1.03,1.95) *	1.29(0.91,1.66) *	<0.001
TC (mmol/l)	4.91±0.85	5.35±0.99	5.34±0.90	0.064
ALT (U/L) [¶]	18.00(14.50,21.00)	26.00(19.00,34.50) *	21.00(19.00,35.00) *	<0.001
AST (U/L) [¶]	19.00(16.00,22.50)	22.00(19.00,26.00) *	21.00(18.00,26.00) *	0.026
Creatinine (μmol/l)	58.28±10.69	63.50±14.40	59.77±13.10	0.093

Data indicate means ± SD or medians (interquartile range). *, $P < 0.05$ compared to lean; #, $P < 0.05$ for difference between the obese versus overweight groups. Abbreviations: BMI, body mass index; FPG, fasting plasma glucose; AST, aspartate transaminase; ALT, alanine aminotransferase; TC, total cholesterol;

[¶]Log transformed before analysis.

Supplementary Table 3. Serum EMC10 concentrations at baseline and after 12 months of either bariatric surgery (n=50) or a combined hypocaloric diet and exercise program (n=50) in a Caucasian weight-loss cohort. Anthropometric and metabolic characteristics of study participants.

	Bariatric surgery (n=50)			Exercise/diet (n=50)		
	Baseline	12 months later	P-value*	Baseline	12 months later	P-value**
Age (years)	47.86±7.89	48.86±7.89		51.44±3.40	52.44±3.40	
BMI (kg/m ²)	50.91±8.30	34.88±5.35	<0.001	35.14±4.47	33.42±5.58	0.001
FPG (mmol/l)	7.89±2.21	6.01±1.75	<0.001	7.85±2.38	6.13±1.45	<0.001
FPI (pmol/l)	140.50(90.20,251.00)	43.65(25.40,85.10)	<0.001	140.15(85.20,207.50)	93.15(49.20,155.20)	<0.001
HOMA-IR	7.15(3.98,10.38)	1.38(0.84,3.99)	<0.001	6.78(3.88,12.62)	3.43(1.72,6.32)	<0.001
HbA1c (%)	7.18±1.19	5.88±1.11	<0.001	6.98±0.79	6.35±0.78	<0.001
TC (mmol/l)	4.97 ± 1.17	4.70 ± 0.88	0.111	5.18 ± 1.10	5.18 ± 1.10	0.858
HDL-c (mmol/l)	1.29 ± 0.32	1.51 ± 0.43	<0.001	1.23 ± 0.23	1.35 ± 0.25	<0.001
LDL-c (mmol/l)	2.99 ± 0.94	2.76 ± 0.80	0.132	3.27 ± 0.93	3.26 ± 0.94	0.896
Triglycerides (mmol/l)	1.52(1.28,2.06)	1.20(0.99,1.54)	<0.001	1.71(1.37,2.32)	1.61(1.27,2.11)	0.005
FFA (mmol/l)	0.52±0.27	0.38±0.22	<0.001	0.56±0.28	0.48±0.28	<0.001
hsCRP (mg/dl)	4.96(2.27,7.23)	2.63(0.95,4.75)	0.003	4.31(2.89,8.26)	2.67(1.64,5.03)	0.021

Data indicate means ± SD or medians (interquartile range). *P*-value* indicates the comparison of baseline and 12 months after bariatric surgery; *P*-value** indicates the difference before and after diet and exercise intervention. Abbreviations: BMI, body mass index; FPG, fasting plasma glucose; FPI, fasting plasma insulin; HbA1c, Haemoglobin A1c ; TC, total cholesterol; HDL-c, high density lipoprotein cholesterol; LDL-c, low density lipoprotein cholesterol; FFA, free fatty acid; hsCRP, high sensitivity C-reactive protein.

Supplementary Table 4: Primers used in the study

	Forward	Reverse
<i>mMcp1</i>	CCACTCACCTGCTGCTACTCAT	TGGTGATCCTCTTGTAGCTCTCC
<i>mTnfa</i>	GCCTCTTCTCATTCTGCTTGT	GGCCATTTGGGAATTCTCAT
<i>mF4/80</i>	TTTCCTCGCCTGCTTCTTC	CCCCGTCTCTGTATTCAAC
<i>mscEmc10</i>	TACTGGCACCTCATCCTGGG	TTAGGCCTCCGTTGGCGCTG
<i>mAtgl</i>	TAGCTAACAGTTGGGCTTCAC	CAGAGAGAACAGAGCAGCTTAC
<i>mHsl</i>	ACGGATACCGTAGTTTGGTGC	TCCAGAAAGTGCACATCCAGGT
<i>mAdrb3</i>	GCTCTGTGTCTCTGGTTAGTTT	GTCCAAGATGGTGCTTAGAGAG
<i>mPgc1a</i>	GACAATCCCGAAGACACTACAG	AGAGAGGAGAGAGAGAGAGAGA
<i>mUcp1</i>	CTGCCAGGACAGTACCCAAG	TCAGCTGTTCAAAGCACACA
<i>mTfam</i>	GTCCATAGGCACCGTATTGCG	CCCATGCTGGAAAACACTTCG
<i>mGlut4</i>	ACATACCTGACAGGGCAAGG	CGCCCTTAGTTGGTCAGAAG
<i>mFasn</i>	GCTGCGGAACTTCAGGAAAT	AGAGACGTGTCACTCCTGGACTT
<i>mSrebp1c</i>	CCTCTGATCTCATGGCTCATAAC	CTAGGGAACTGTGTGTGTTTCT
<i>mDio2</i>	AAGGCTGCCGAATGTCAACGAATG	TGCTGGTTCAGACTCACCTTGGAA
<i>mTBP</i>	ACCCTTCACCAATGACTCCTATG	ATGATGACTGCAGCAAATCGC
<i>hscEMC10</i>	ATACTGGCACATCATCCTGGGG	ACATCCATCAGGCCTCCTGTG