Table S1: Inter-observer reliability of anthropometric measurements

	TEM	CV (%)
Weight (kg)	0.09	0.19
Height (cm)	0.26	0.16
Triceps skinfolds (mm)	0.80	6.00
Subscapular skinfolds (mm)	0.83	4.18

TEM: Technical error of measurement; CV: coefficient of variation

Table S2: Allele frequency and Hardy-Weinberg test of the 9 SNPs genotyped at the *MC3R* locus in the GUSTO population

	SNP ID	SNP position	Observed Heterozygosity				Hardy-Weinberg p-value				Minor allele frequency				Alleles (major: minor)
			Overall	Chinese	Malay	Indian	Overall	Chinese	Malay	Indian	Overall	Chinese	Malay	Indian	
MC3R															
1	rs3746619	54823805	0.355	0.323	0.391	0.396	0.565	0.323	0.963	1.000	0.238	0.215	0.261	0.274	C:A
2	exm1969518 (rs184418987)	54823993	0.001	0.002	0.000	0.000	1.000	1.000	1.000	1.000	0.000	0.001	0.000	0.000	A:T
3	exm1551534 (rs3827103)	54824029	0.351	0.323	0.391	0.371	0.451	0.323	0.963	0.667	0.235	0.215	0.261	0.261	G:A
4	rs3827103	54824029	0.351	0.323	0.391	0.371	0.438	0.323	0.963	0.667	0.235	0.215	0.261	0.261	G:A
5	exm1551535 (rs143321797)	54824033	0.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	A:A
6	exm1969522 (rs61735256)	54824533	0.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	G:G
7	exm1551559 (rs61735259)	54824557	0.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	C:C
8	exm1551560 (rs144585517)	54824612	0.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	A:A
9	exm1551565 (rs146000025)	54824677	0.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	G:G

Table S3: Factor loadings for all items of the Children Eating Behaviour Questionnaire (CEBQ) and Cronbach-Alpha scores for each subscale

Items [a]	Factors determined through factor analysis [b]									
	1 'Enjoyment of food/ Food fussiness	2 'Emotional under eating'	3 'Emotional over eating'	4 'Slowness in eating'	5 'Food responsiveness'	6 'Desire to drink'	7 'Satiety responsiveness'	8 ' Not applicable [c]'	Original scale [d]	Cronbach alpha
My child loves food	0.788								EF	0.909
My child is interested in food	0.826								EF	
My child refuses new foods at first(R)	0.633								FF	
My child enjoys tasting new foods	0.767								FF	
My child enjoys a wide variety of foods	0.798								FF	
My child looks forward to mealtimes	0.671								EF	
My child enjoys eating	0.751								EF	
My child is difficult to please with meals (R)	0.602								FF	
My child is interested in tasting food s/he hasn't tasted before	0.688								FF	
My child decides that s/he doesn't like a food, even without tasting it (R)	0.592								FF	
My child eats less when angry		0.729							EUE	0.785
My child eats less when s/he is tired		0.784							EUE	
My child eats more when she is happy		0.577							EUE	
My child eats less when upset		0.867							EUE	
My child eats more when worried			0.762						EOE	0.778
My child eats more when annoyed			0.774						EOE	
My child eats more when anxious			0.787						EOE	
My child finishes his/her meal quickly				0.743					SE	0.753
My child eats slowly				0.768					SE	
My child takes more than 30 minutes to finish a meal				0.599					SE	
If allowed to, my child would eat too much				0.583					FR	0.777
Even if my child is full up s/he finds room to eat his/her favorite food				0.712					FR	
If given the chance, my child would always have food in his/her mouth				0.585					FR	
My child is always asking for a drink					0.746				DD	0.739
If given the chance, my child would drink continuously throughout the day					0.758				DD	
If given the chance, my child would always be having a drink					0.829				DD	
My child leaves food on his/her plate at the end of a meal						0.627			SR	0.683
My child gets full before his/her meal is finished						0.807			SR	
My child gets full up easily						0.527			SR	
My child is always asking for food								0.513	SR	

a Items marked with (R) have been reversed scored. There are only 30 items in the table as the item 'My child has a big appetite', Given the choice, my child would eat most of the time, 'My child eats more s/he has nothing else to do', 'My child cannot eat a meal if s/he has had a snack just before', 'My child eats more and more slowly during the course of a meal' had a factor loading score below 0.5 and was not included into the subscales.
b Only items with factor loading scores above 0.5 are presented
c The eighth subscale was labelled as ' non applicable' as only one item loaded in this subscale and it was not used for further analysis
d Appetite scale the item was originally intended to measure: EF,' enjoyment of food' ; FR, ' food responsiveness', FF,' food fussiness' ,SR ' satiety responsiveness'; SE 'slowness in eating' ; EUE, ' Emotional Under Eating' ; EOE, ' Emotional Over Eating' ; DD, 'desire to drink'

Table S4: Clinical characteristics of mothers by offspring *MC3R* genotype

	***MC3R* rs3746619**			
	CC N = 639	**AC N = 385**	**AA N = 66**	**P value[#]**
Age (years)	30.6 ± 5.0	30.8 ± 5.3	31.2 ± 5.2	0.680
Education level				0.111
< 12 years	242 (55.4)	162 (37.1)	33 (7.6)	
≥ 12 years	389 (60.8)	218 (34.1)	33 (5.2)	
Type of housing				0.103
Government	573 (58.1)	348 (35.3)	65 (6.6)	
Private	58 (63.7)	32 (35.2)	1 (1.1)	
Marital status				0.803
Married	607 (58.8)	361 (35.0)	64 (6.2)	
Single/Divorced	19 (51.4)	15 (42.9)	2 (5.7)	
Parity				0.755
Primiparous	286 (57.7)	181 (36.5)	29 (5.8)	
Multiparous	353 (59.4)	204 (34.3)	37 (6.2)	
Body Mass Index (kg/m^2) at 26-28 weeks pregnancy	26.1 ± 4.3	26.5 ± 4.6	25.7 ± 4.7	0.305
Gestational diabetes				0.854
No	480 (58.0)	294 (35.6)	53 (6.4)	
Yes	110 (58.5)	68 (36.2)	10 (5.3)	

Numbers represent mean ± SD or n(%)

[#] P value for continuous variables by One-Way ANOVA; for categorical variables by chi-square analysis

Table S5: Characteristics of participants who completed the CEBQ questionnaire, compared to those who did not complete the CEBQ questionnaire

	Completed CEBQ (n = 422)	**Did not complete CEBQ (n = 668)**	**P value**
Maternal education			**0.022**
< 12 years	152 (36.3)	285 (43.3)	
≥ 12 years	267 (63.7)	373 (56.7)	
Ethnicity			**<0.001**
Chinese	268 (63.5)	349 (52.2)	
Malay	101 (23.9)	175 (26.2)	
Indian	53 (12.6)	144 (21.6)	
Parity			0.452
Primiparous	186 (44.1)	310 (36.4)	
Multiparous	236 (55.9)	358 (53.6)	
BMI at 26-28 weeks pregnancy	25.8 ± 4.1	26.5 ± 4.6	**0.011**
Gestational age at delivery	38.6 ± 1.0	38.1 ± 1.6	**<0.001**
Gender			0.879
Male	197 (46.7)	315 (47.2)	
Female	225 (53.3)	353 (52.8)	
Breastfeeding duration			**0.015**
< 6 months	206 (56.9)	287 (64.5)	
≥ 6 months	161 (43.1)	158 (35.5)	
Birth weight (kg)	3.2 ± 0.4	3.0 ± 0.5	**<0.001**

Table S6: Association between *MC3R* with childhood appetitive traits at 12-months of age

	B	95% Confidence Intervals		P value
		Lower bound	Upper bound	
CEBQ				
Enjoyment of food	-0.002	-0.18	0.17	0.982
Food responsiveness	0.07	-0.10	0.24	0.522
Emotional under eating	0.05	-0.11	0.21	0.405
Slowness in eating	0.24	0.06	0.39	**0.006**
Emotional over eating	0.14	-0.04	0.31	0.132
Desire to drink	0.08	-0.10	0.25	0.374
Satiety responsiveness	-0.13	-0.30	0.03	0.119

Adjusted for maternal education, BMI at 26-28 week gestation, gender, ethnicity, birthweight-for-gestational age and breastfeeding duration

Figure S1**:** Flowchart for GUSTO Study recruitment and eventual study sample

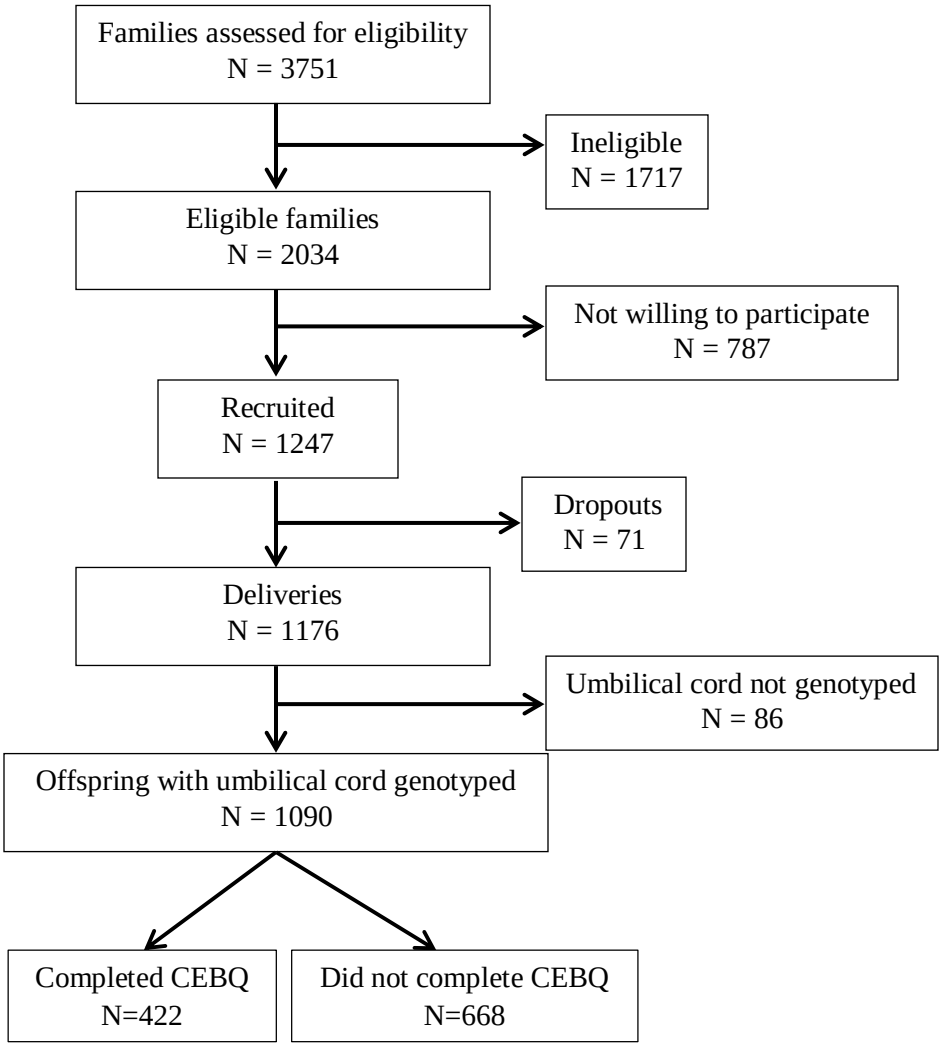

Figure S2: Linkage disequilibrium (r^2) between the two MC3R variants

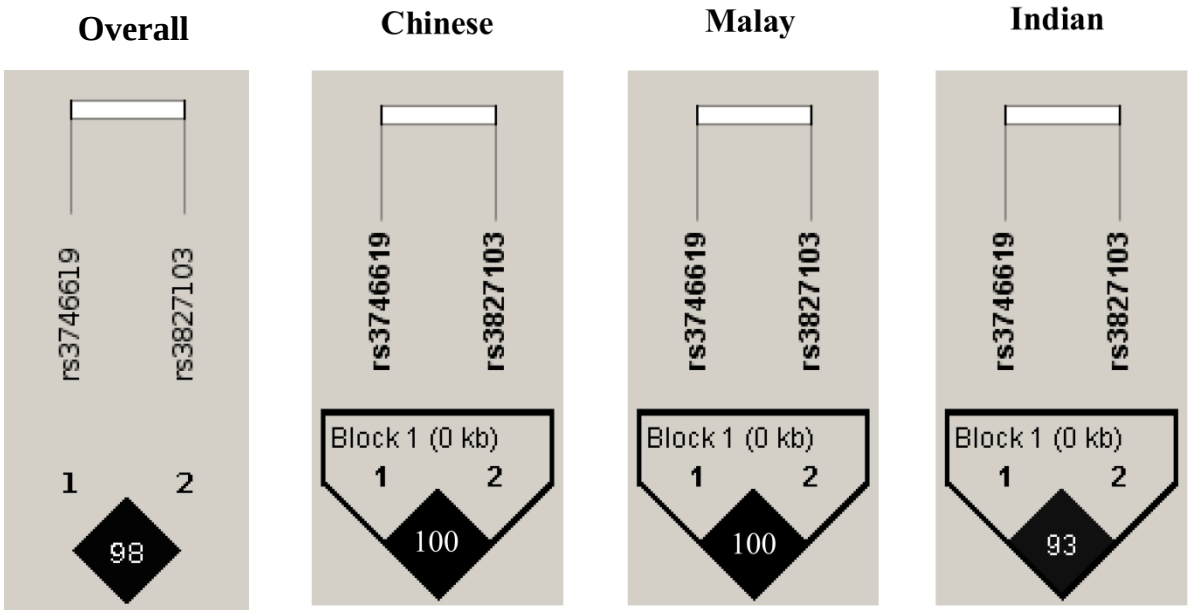

Figure S3: Percentage of offspring who are overweight in the first 48-months by offspring *MC3R* rs3746619 genotype

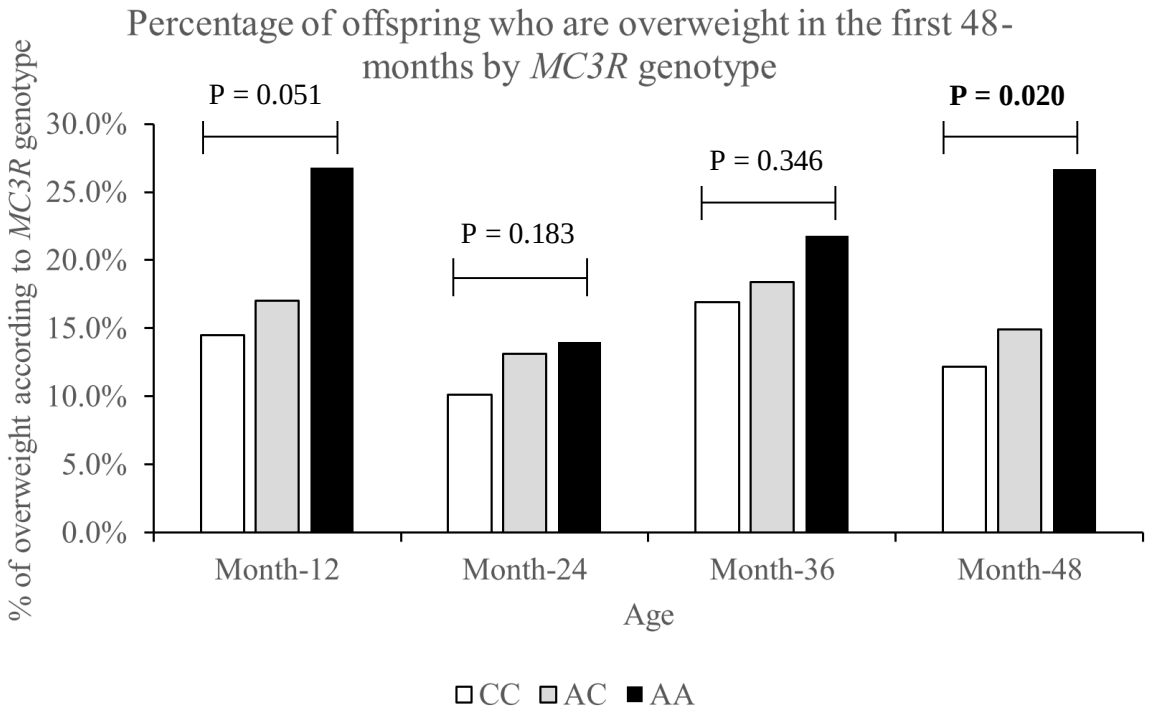

Figure S4: Percentage of offspring who are obese in the first 48-months by offspring *MC3R* rs3746619 genotype