

## SUPPLEMENTARY TABLES

**Supplementary Table 1. CpG sites associated with BMI residing in longevity genes (FDR<0.0001) in the whole population.**

	CpG_ID	P.Value	adj.P.Val	Gene
1	cg21511036	8,96E-15	5,01E-11	<i>IRS1</i>
2	cg08862778	1,83E-13	3,37E-10	<i>MTOR</i>
3	cg11322849	1,57E-10	5,14E-08	<i>INS</i>
4	cg20406576	4,20E-10	1,07E-07	<i>PRKAG2</i>
5	cg13551841	3,44E-09	5,12E-07	<i>EHMT1</i>
6	cg10136773	1,07E-08	1,17E-06	<i>SESN3</i>
7	cg07199894	1,38E-08	1,42E-06	<i>ULK1</i>
8	cg01749142	1,49E-08	1,51E-06	<i>AKT1</i>
9	cg11658986	1,58E-08	1,57E-06	<i>ADCY6</i>
10	cg21195984	1,91E-08	1,82E-06	<i>EHMT1</i>
11	cg15283498	2,18E-08	2,01E-06	<i>FOXO3</i>
12	cg14862787	4,15E-08	3,20E-06	<i>CREB5</i>
13	cg05792022	4,78E-08	3,55E-06	<i>FOXO1</i>
14	cg15973818	5,65E-08	4,00E-06	<i>RB1CC1</i>
15	cg22048274	6,24E-08	4,28E-06	<i>EHMT2</i>
16	cg13810766	6,83E-08	4,57E-06	<i>PRKAG2</i>
17	cg23709782	1,27E-07	7,22E-06	<i>IGF1R</i>
18	cg17848496	1,39E-07	7,72E-06	<i>IRS1</i>
19	cg04149773	1,39E-07	7,72E-06	<i>ADCY6</i>
20	cg02352203	1,42E-07	7,83E-06	<i>RPTOR</i>
21	cg14113970	2,16E-07	1,05E-05	<i>CAMK4</i>
22	cg14129040	2,30E-07	1,10E-05	<i>CREB1</i>
23	cg14844401	2,31E-07	1,11E-05	<i>ADCY5</i>
24	cg03813033	3,01E-07	1,33E-05	<i>AKT1S1</i>
25	cg07012178	3,07E-07	1,35E-05	<i>PRKAG2</i>
26	cg14267811	3,24E-07	1,41E-05	<i>TSC1</i>
27	cg01284192	4,12E-07	1,68E-05	<i>IGF1R</i>
28	cg24061580	4,71E-07	1,84E-05	<i>PRKAG2</i>
29	cg01091261	5,50E-07	2,06E-05	<i>ADCY9</i>

	CpG_ID	P.Value	adj.P.Val	Gene
30	cg06223834	6,22E-07	2,25E-05	<i>ADCY9</i>
31	cg18028483	6,40E-07	2,29E-05	<i>SESN1</i>
32	cg12416929	7,54E-07	2,58E-05	<i>FOXO3</i>
33	cg12566890	8,43E-07	2,80E-05	<i>ADCY2</i>
34	cg13574337	9,35E-07	3,01E-05	<i>ADCY9</i>
35	cg04832916	1,00E-06	3,18E-05	<i>CAMKK2</i>
36	cg13796676	1,12E-06	3,43E-05	<i>SIRT1</i>
37	cg06772578	1,30E-06	3,83E-05	<i>PPARGCIA</i>
38	cg19503731	1,31E-06	3,85E-05	<i>AKT3</i>
39	cg10421188	1,36E-06	3,95E-05	<i>CREB5</i>
40	cg13613346	1,49E-06	4,22E-05	<i>EHMT2</i>
41	cg18758433	1,52E-06	4,28E-05	<i>RPTOR</i>
42	cg13154908	1,58E-06	4,39E-05	<i>PIK3CA</i>
43	cg24937356	1,96E-06	5,13E-05	<i>PRKAA2</i>
44	cg18237616	2,02E-06	5,25E-05	<i>RHEB</i>
45	cg14323456	2,06E-06	5,33E-05	<i>RHEB</i>
46	cg01781374	2,12E-06	5,44E-05	<i>CAMK4</i>
47	cg19292222	2,27E-06	5,70E-05	<i>RPTOR</i>
48	cg11301281	2,48E-06	6,08E-05	<i>CREB5</i>
49	cg02823066	2,54E-06	6,18E-05	<i>IGF1</i>
50	cg20300093	2,80E-06	6,63E-05	<i>ADCY5</i>
51	cg14077232	2,80E-06	6,63E-05	<i>EHMT1</i>
52	cg04932465	3,35E-06	7,52E-05	<i>CAMKK2</i>
53	cg08128650	3,40E-06	7,61E-05	<i>RELA</i>
54	cg08315825	3,61E-06	7,96E-05	<i>IGF1R</i>
55	cg19418273	3,89E-06	8,40E-05	<i>CREB3L2</i>
56	cg17324121	3,93E-06	8,44E-05	<i>IRS2</i>
57	cg00210002	4,12E-06	8,76E-05	<i>EHMT2</i>
58	cg14072989	4,51E-06	9,33E-05	<i>RPS6KB1</i>

CpG\_ID: CpG loci identifier in Illumina platform

Adj. P. Val: Adjusted P value

**Supplementary Table S2. GEO datasets from metabolic studies using DNA methylation arrays with Infinium Human Methylation 450K (Illumina platform).**

Geo Accession	Sample Tissue	Sample Size	Gender	Age (y)	BMI (kg/m <sup>2</sup> )	Study Title
GSE76285	PBMC	80	Women	36.4 ± 6.3 (Insulin Sensitive) 35.7 ± 5.7 (Insulin Resistant)	>35 kg/m <sup>2</sup> (with comorbidities) or >40 kg/m <sup>2</sup>	The epigenetic signature of systemic insulin resistance in obese women. PMID: 27535281
GSE65057	Liver tissue	15	Men	40.5 ± 4.1 (Non Obese) 41.6 ± 4.1 (Obese)	26.1 ± 2.0 kg/m <sup>2</sup> (Non Obese) 38.9 ± 2.1 kg/m <sup>2</sup> (Obese)	Altered DNA methylation of glycolytic and lipogenic genes in liver from obese and type 2 diabetic patients. PMID: 26977391
GSE67024	Subcutaneous fat	29	Women	45 ± 11 (Non Obese) 46 ± 11 (Obese)	25.2 ± 2.5 kg/m <sup>2</sup> (Non Obese) 41.3 ± 4.4 kg/m <sup>2</sup> (Obese)	The epigenetic signature of subcutaneous fat cells is linked to altered expression of genes implicated in lipid metabolism in obese women. PMID: 26351548
GSE54776	Visceral fat	14	Men	33.6 ± 5.8 (Met Syndrome -) 42.4 ± 10.9 (Met Syndrome +)	50.7 ± 3.5 (Met Syn -) 55.8 ± 8.4 (Met Syn +)	Gene methylation profiles in visceral adipose tissue of obese mens with or without metabolic syndrome. PMID: 24495915

BMI: Body Mass Index

PBMC: Peripheral Blood Mononuclear Cells